

State of California
The Resources Agency

DEPARTMENT OF WATER RESOURCES
Division of Operations and Maintenance

STATE WATER PROJECT OPERATIONS DATA

For the month of:
December 1998

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State of California

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Secretary for Resources
The Resources Agency

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State of California
The Resources Agency

Department of Water Resources
Division of Operations and Maintenance

**State Water Project
Operations Data**

for the Month of December 1998

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MONTHLY HIGHLIGHTS

The following highlights are activities or actions that impacted State Water Project operations during the month of December 1998.

Water supply conditions remain good for most of California. December started wet, then turned dry becoming very cold during Christmas week while remaining dry. It was the coldest winter weather since the big freeze of December 1990; there was much frost damage especially to San Joaquin Valley citrus. There is a pronounced gradient in precipitation within California whereby the northern portion of the State is above average but the southern end is below average. We are now one-third the way through the accumulation season.

As of December 31, Northern Sierra precipitation stands at 19 inches, 105 percent of average. December amounts were approximately 55 percent of normal. In 1997, we had 17.5 inches of precipitation at the end of December, which was almost average.

The statewide snowpack was approximately three-fourths of average on December 31. The northern Sierra pack is about average but the southern Sierra pack is less than half of normal.

December runoff was slightly below average with the seasonal total now about average for this date, compared to 65 percent last year. Normally, December runoff is about 10 percent of the water year total.

Reservoir storage changed little during December and is approximately 130 percent of average statewide. Reservoirs are about three-fourths full overall. Storage in most large reservoirs is limited by flood control requirements. Modest amounts of flood control releases were made at most Central Valley foothill reservoirs during December. On December 31, total storage in major State Water Project reservoirs was about 4.4 million acre-feet, compared to 3.9 MAF at this time in 1997. Storage in Lake Oroville was about 2.7 MAF, compared to 2.2 MAF at this time last year. The State's share of San Luis Reservoir storage was about 1.07 MAF compared to 994,000 acre-feet at this time in 1997. On December 31, the combined storage in our southern reservoirs was 628,000 AF compared with 647,000 AF at this time in 1997.

Through December 31, SWP water deliveries for 1998 were 1.84 MAF, representing a combination of annual entitlement, carryover, interruptible, and exchange waters. This is 550,000 AF less than delivered during the same period in 1997.

Flood control releases of 26,156 AF were made through the Oroville spillway December 4 through 8.

East Branch pumping filled Silverwood in preparation for January East Branch outage.

West Branch was out of service the entire month of December for Lower Quail Canal and Peace Valley Pipeline repairs.

In December, pipe rollout sections were installed in the Santa Ana Pipeline during an outage. The rollout sections will be used for outages in early 1999 to inspect and repair the Santa Ana Pipeline.

For two weeks in December, SWP exports were voluntarily curtailed to 2,000 cubic feet per second to facilitate a fishery experiment. Due to relatively low contractor demands and high storage levels at San Luis Reservoir, there were no water supply impacts. The CVP's Tracy Pumping Plant has been out of service since mid-November for cleaning and maintenance of the Delta Mendota Canal.

Table 1. Antelope Lake

Daily Operation

(in acre-feet except as noted)

Capacity: 22,566 ac-ft

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Outflow in cfs					Computed Inflow 1/	
				Regulated Release			Spill	Estimated Evaporation And Seepage 1/		
				Stream-flow Maint.	Water Supply Contract	Water Right				
Nov 30	4998.18	19,166								
1	4998.25	19,225	59	20	0	0	0			
2	4998.32	19,285	60	20	0	0	0			
3	4998.63	19,550	265	20	0	0	0			
4	4998.72	19,627	77	20	0	0	0			
5	4998.77	19,670	43	20	0	0	0			
6	4998.81	19,704	34	20	0	0	0			
7	4998.83	19,721	17	20	0	0	0			
8	4998.85	19,739	18	20	0	0	0			
9	4998.86	19,747	8	20	0	0	0			
10	4998.86	19,747	0	20	0	0	0			
11	4998.87	19,756	9	20	0	0	0			
12	4998.88	19,765	9	20	0	0	0			
13	4998.90	19,782	17	20	0	0	0			
14	4998.90	19,782	0	20	0	0	0			
15	4998.90	19,782	0	20	0	0	0			
16	4998.91	19,790	8	20	0	0	0			
17	4998.91	19,790	0	20	0	0	0			
18	4998.91	19,790	0	20	0	0	0			
19	4998.91	19,790	0	20	0	0	0			
20	4998.92	19,799	9	20	0	0	0			
21	4998.91	19,790	-9	20	0	0	0			
22	4998.87	19,756	-34	20	0	0	0			
23	4998.86	19,747	-9	20	0	0	0			
24	4998.86	19,747	0	20	0	0	0			
25	4998.86	19,747	0	20	0	0	0			
26	4998.88	19,765	18	20	0	0	0			
27	4998.86	19,747	-18	20	0	0	0			
28	4998.87	19,756	9	20	0	0	0			
29	4998.85	19,739	-17	20	0	0	0			
30	4998.84	19,730	-9	20	0	0	0			
31	4998.84	19,730	0	20	0	0	0			
Total cfs-days			---	620	0	0	0	48	668	
Total ac-ft			564	1,230	0	0	0	95	1,325	
									952	
									1,889	

1/ Values not available on a daily basis.

Table 2. Frenchman Lake

Daily Operation

(in acre-feet except as noted)

Capacity: 55,477 ac-ft

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Outflow in cfs					Computed Inflow 1/	
				Regulated Release			Spill	Estimated Evaporation And Seepage 1/		
				Stream-flow Maint.	Water Supply Contract	Water Right				
Nov 30	5581.44	45,708								
1	5581.48	45,764	56	2	0	0	0			
2	5581.52	45,820	56	2	0	0	0			
3	5581.59	45,919	99	2	0	0	0			
4	5581.62	45,961	42	2	0	0	0			
5	5581.65	46,003	42	2	0	0	0			
6	5581.66	46,017	14	2	0	0	0			
7	5581.67	46,031	14	2	0	0	0			
8	5581.70	46,074	43	2	0	0	0			
9	5581.70	46,074	0	2	0	0	0			
10	5581.70	46,074	0	2	0	0	0			
11	5581.71	46,088	14	2	0	0	0			
12	5581.73	46,166	78	2	0	0	0			
13	5581.78	46,186	20	2	0	0	0			
14	5581.76	46,158	-28	2	0	0	0			
15	5581.79	46,201	43	2	0	0	0			
16	5581.82	46,243	42	2	0	0	0			
17	5581.92	46,384	141	2	0	0	0			
18	5581.88	46,328	-56	2	0	0	0			
19	5581.84	46,271	-57	2	0	0	0			
20	5581.88	46,328	57	2	0	0	0			
21	5581.89	46,342	14	2	0	0	0			
22	5581.95	46,427	85	2	0	0	0			
23	5581.90	46,356	-71	2	0	0	0			
24	5581.93	46,398	42	2	0	0	0			
25	5581.92	46,384	-14	2	0	0	0			
26	5581.91	46,370	-14	2	0	0	0			
27	5581.96	46,441	71	2	0	0	0			
28	5581.98	46,469	28	2	0	0	0			
29	5581.93	46,398	-71	2	0	0	0			
30	5582.02	46,526	128	2	0	0	0			
31	5582.04	46,554	28	2	0	0	0			
Total cfs-days			---	62	0	0	0	78	140	
Total ac-ft			846	123	0	0	0	155	278	
									1,124	

1/ Values not available on a daily basis.

Table 3. Lake Davis

Daily Operation
(in acre-feet except as noted)

Capacity: 84,371 ac-ft

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Outflow in cfs					Computed Inflow 1/	
				Regulated Release			Spill	Estimated Evaporation And Seepage 1/		
				Stream-flow Maint.	Water Supply Contract	Water Right				
Nov 30	5769.74	64,613								
1	5769.78	64,752	139	23	0	0	0			
2	5769.80	64,822	70	23	0	0	0			
3	5769.97	65,418	596	23	0	0	0			
4	5769.99	65,488	70	23	0	0	0			
5	5769.98	65,453	-35	23	0	0	0			
6	5769.99	65,488	35	23	0	0	0			
7	5769.99	65,488	0	23	0	0	0			
8	5769.99	65,488	0	23	0	0	0			
9	5769.99	65,488	0	23	0	0	0			
10	5769.99	65,488	0	23	0	0	0			
11	5769.99	65,488	0	23	0	0	0			
12	5769.99	65,488	0	23	0	0	0			
13	5769.99	65,488	0	23	0	0	0			
14	5769.99	65,488	0	23	0	0	0			
15	5769.97	65,418	-70	23	0	0	0			
16	5769.96	65,382	-36	23	0	0	0			
17	5769.96	65,382	0	23	0	0	0			
18	5769.94	65,312	-70	23	0	0	0			
19	5769.92	65,242	-70	23	0	0	0			
20	5769.91	65,207	-35	23	0	0	0			
21	5769.90	65,172	-35	23	0	0	0			
22	5769.89	65,137	-35	23	0	0	0			
23	5769.87	65,067	-70	23	0	0	0			
24	5769.87	65,067	0	23	0	0	0			
25	5769.89	65,137	70	23	0	0	0			
26	5769.88	65,102	-35	23	0	0	0			
27	5769.88	65,102	0	23	0	0	0			
28	5769.88	65,102	0	23	0	0	0			
29	5769.86	65,032	-70	23	0	0	0			
30	5769.85	64,997	-35	23	0	0	0			
31	5769.84	64,962	-35	23	0	0	0			
Total cfs-days			---	713	0	0	0	194	906	
Total ac-ft			349	1,414	0	0	0	384	1,798	
									2,147	

1/ Values not available on a daily basis.

Table 4. Lake Oroville

Daily Operation

(in acre-feet except as noted)

Capacity: 3,537,580 ac-ft

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Outflow					Inflow	
				Hyatt Powerplant Generation 1/	Palermo Canal	Evaporation 2/	Spill	Total Outflow	Hyatt Powerplant Pumpback	Computed Inflow 3/
Nov 30	856.02	2,889,913								
1	857.04	2,903,896	13,983	23,454	3	76	0	23,533	0	37,516
2	856.77	2,900,190	-3,706	26,306	3	161	0	26,470	0	22,764
3	858.82	2,928,412	28,222	28,535	4	28	0	28,567	0	56,789
4	858.97	2,930,484	2,072	27,607	3	19	2,529	30,158	0	29,701
5	858.14	2,919,030	-11,454	27,887	3	48	6,950	34,888	0	16,484
6	857.11	2,904,858	-14,172	28,410	4	10	6,488	34,912	0	14,252
7	855.69	2,885,399	-19,459	28,624	3	29	6,751	35,407	0	9,197
8	854.66	2,871,343	-14,056	28,547	3	9	3,438	31,997	0	14,503
9	853.47	2,855,163	-16,180	28,358	4	28	0	28,390	0	12,210
10	852.50	2,842,021	-13,142	28,245	4	150	0	28,399	0	15,257
11	851.29	2,825,688	-16,333	27,720	6	28	0	27,754	0	11,421
12	850.23	2,811,434	-14,254	28,138	6	9	0	28,153	0	13,899
13	848.91	2,793,754	-17,680	28,908	6	28	0	28,942	0	11,262
14	847.80	2,778,947	-14,807	26,888	6	46	0	26,940	0	12,133
15	846.48	2,761,411	-17,536	27,436	6	83	0	27,525	0	9,989
16	845.76	2,751,879	-9,532	21,317	6	201	0	21,524	0	11,992
17	844.86	2,739,996	-11,883	20,507	5	110	0	20,622	0	8,739
18	844.41	2,734,068	-5,928	16,662	6	55	0	16,723	0	10,795
19	844.13	2,730,384	-3,684	15,915	6	27	0	15,948	0	12,264
20	843.54	2,722,632	-7,752	18,732	6	18	0	18,756	0	11,004
21	842.50	2,709,007	-13,625	24,370	5	0	0	24,375	0	10,750
22	841.58	2,696,993	-12,014	20,743	5	0	0	20,748	0	8,734
23	840.88	2,687,877	-9,116	18,683	5	117	0	18,805	0	9,689
24	840.77	2,686,446	-1,431	11,521	5	18	0	11,544	0	10,113
25	841.12	2,691,000	4,554	6,597	5	27	0	6,629	0	11,183
26	841.23	2,692,432	1,432	9,058	6	9	0	9,073	0	10,505
27	841.36	2,694,125	1,693	8,409	6	18	0	8,433	0	10,126
28	841.12	2,691,000	-3,125	11,986	6	9	0	12,001	0	8,876
29	841.05	2,690,089	-911	10,885	6	45	0	10,936	0	10,025
30	841.08	2,690,479	390	10,004	6	0	0	10,010	0	10,400
31	840.88	2,687,876	-2,603	11,748	6	36	0	11,790	0	9,187
Total		-202,037	652,200	154	1,442	26,156	679,952	0	451,759	

1/ Includes bypass flows, if any.

2/ Evaporation will be zero for days when there is precipitation or heavy overcast.

3/ Does not include pumpback

**Table 5. Thermalito Forebay
Including Diversion Pool and Power Canal**

Daily Operation

(in acre-feet except as noted)

December 1998

Capacity: 25,120 ac-ft

Date	Storage 1/	Storage Change	Inflow			Outflow					Losses (-) And Gains (+)
			Lake Oroville Releases 2/ 3/	Kelly Ridge Generation	Thermalito Pumping- Generating Plant Pumpback	Thermalito Pumping- Generating Plant Generation 3/	Butte County	Thermalito Irrigation District	Releases To River 4/	Hyatt Powerplant Pumpback	
Sep 30	23,675										
1	23,091	-584	23,454	258	0	23,655	1	3	1,252	0	615
2	22,604	-487	26,306	510	0	26,468	1	3	1,238	0	407
3	22,623	19	28,535	545	0	28,412	1	3	1,244	0	599
4	22,568	-55	30,136	470	0	30,190	1	3	1,246	0	779
5	22,965	397	34,837	510	0	34,288	1	3	1,266	0	608
6	22,900	-65	34,898	514	0	34,330	1	3	1,250	0	107
7	23,023	123	35,375	486	0	34,307	1	3	1,258	0	-169
8	22,765	-258	31,985	500	0	29,282	1	3	1,250	0	-2,207
9	23,737	972	28,358	502	0	27,021	1	3	1,232	0	369
10	22,750	-987	28,245	502	0	28,844	1	3	1,238	0	352
11	23,708	958	27,720	468	0	26,438	1	3	1,240	0	452
12	22,974	-734	28,138	484	0	28,449	1	3	1,242	0	339
13	22,799	-175	28,908	520	0	28,711	1	3	1,244	0	356
14	23,845	1,046	26,888	500	0	25,549	1	3	1,246	0	457
15	23,688	-157	27,436	504	0	27,238	1	3	1,230	0	375
16	22,477	-1,211	21,317	504	0	22,198	1	4	1,222	0	393
17	22,835	358	20,507	540	0	19,740	1	4	1,216	0	272
18	22,436	-399	16,662	464	0	17,441	1	4	1,226	0	1,147
19	22,747	311	15,915	514	0	14,307	1	4	1,238	0	-568
20	22,758	11	18,732	508	0	18,159	1	4	1,242	0	177
21	22,684	-74	24,370	512	0	24,055	1	4	1,244	0	348
22	22,729	45	20,743	498	0	20,288	1	4	1,230	0	327
23	22,876	147	18,683	510	0	18,172	1	4	1,230	0	361
24	22,854	-22	11,521	506	0	11,626	1	4	1,243	0	825
25	22,964	110	6,597	504	0	5,914	1	4	1,247	0	175
26	22,717	-247	9,058	504	0	8,680	1	4	1,243	0	119
27	22,808	91	8,409	508	0	7,751	1	4	1,241	0	171
28	22,433	-375	11,986	504	0	11,820	1	4	1,239	0	199
29	22,528	95	10,885	506	0	10,286	1	4	1,237	0	232
30	22,702	174	10,004	500	0	9,276	1	4	1,243	0	194
31	22,871	169	11,748	515	0	11,031	2	4	1,243	0	186
Total		-804	678,356	15,370	0	663,926	32	109	38,460	0	7,997

1/ Sum of Thermalito Forebay and Diversion Pool.

3/ Includes Bypass flows, if any.

2/ Sum of releases from Lake Oroville through Hyatt plant and spill.

4/ The sum of the flows from fish barrier dam and the fish hatchery.

Table 6. Thermalito Afterbay

Daily Operation

(in acre-feet except as noted)

Capacity: 57,040 ac-ft

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Inflow		Outflow					Losses (-) and Gains (+)	Total Releases to River 2/
				Thermalito Pumping-Generating Plant Generation 1/	Sutter Butte Canal	Western Canal Lateral	Richvale Canal	Western Canal	Afterbay River Outlet	Thermalito Pumping-Generating Plant Pumpback		
Nov 30	130.09	32,451										
1	131.72	38,106	5,655	23,655	922	0	436	99	15,313	0	-1,230	16,565
2	130.56	34,038	-4,068	26,468	869	0	422	91	28,761	0	-393	29,999
3	129.82	31,556	-2,482	28,412	823	0	422	121	28,761	0	-767	30,005
4	128.94	28,720	-2,836	30,190	783	0	422	173	30,744	0	-904	31,990
5	128.83	28,374	-346	34,288	797	0	424	194	32,728	0	-491	33,994
6	128.83	28,374	0	34,330	807	0	424	194	32,728	0	-177	33,978
7	128.88	28,531	157	34,307	807	1	448	313	32,728	0	147	33,986
8	128.56	27,534	-997	29,282	805	2	464	373	30,744	0	2,109	31,994
9	127.99	25,801	-1,733	27,021	813	2	460	311	26,777	0	-391	28,009
10	127.90	25,532	-269	28,844	827	2	462	294	26,777	0	-751	28,015
11	127.17	23,401	-2,131	26,438	825	2	460	294	26,777	0	-211	28,017
12	127.01	22,946	-455	28,449	841	2	462	294	26,777	0	-528	28,019
13	127.02	22,974	28	28,711	851	2	460	292	26,777	0	-301	28,021
14	125.87	19,826	-3,148	25,549	853	2	460	294	26,777	0	-311	28,023
15	126.16	20,600	774	27,238	857	2	462	294	23,802	0	-1,047	25,032
16	126.27	20,897	297	22,198	869	2	462	296	19,756	0	-516	20,978
17	126.80	22,355	1,458	19,740	875	3	464	300	15,769	0	-871	16,985
18	126.94	22,748	393	17,441	881	4	466	296	14,737	0	-664	15,963
19	126.04	20,279	-2,469	14,307	875	4	464	294	14,737	0	-402	15,975
20	126.41	21,278	999	18,159	875	4	464	296	14,757	0	-764	15,999
21	128.71	28,000	6,722	24,055	891	4	464	305	14,777	0	-892	16,021
22	129.67	31,064	3,064	20,288	885	4	464	315	14,777	0	-779	16,007
23	130.61	34,209	3,145	18,172	879	3	464	315	12,774	0	-592	14,004
24	130.06	32,351	-1,858	11,626	875	1	462	313	10,751	0	-1,082	11,994
25	128.53	27,442	-4,909	5,914	875	2	462	313	8,767	0	-404	10,014
26	127.84	25,353	-2,089	8,680	873	3	462	313	8,747	0	-371	9,990
27	126.83	22,439	-2,914	7,751	875	2	462	313	8,727	0	-286	9,968
28	127.16	23,373	934	11,820	875	2	462	331	8,727	0	-489	9,966
29	127.52	24,412	1,039	10,286	877	2	462	353	7,240	0	-313	8,477
30	128.01	25,861	1,449	9,276	875	2	464	355	5,772	0	-359	7,015
31	129.07	29,131	3,270	11,031	877	3	464	355	5,752	0	-310	6,995
Total		-3,320		663,926	26,512	62	14,100	8,694	603,538	0	-14,340	641,998

1/ Includes Bypass flows, if any.

2/ The sum of the flows from the fish barrier dam, fish hatchery, and afterbay river outlet.

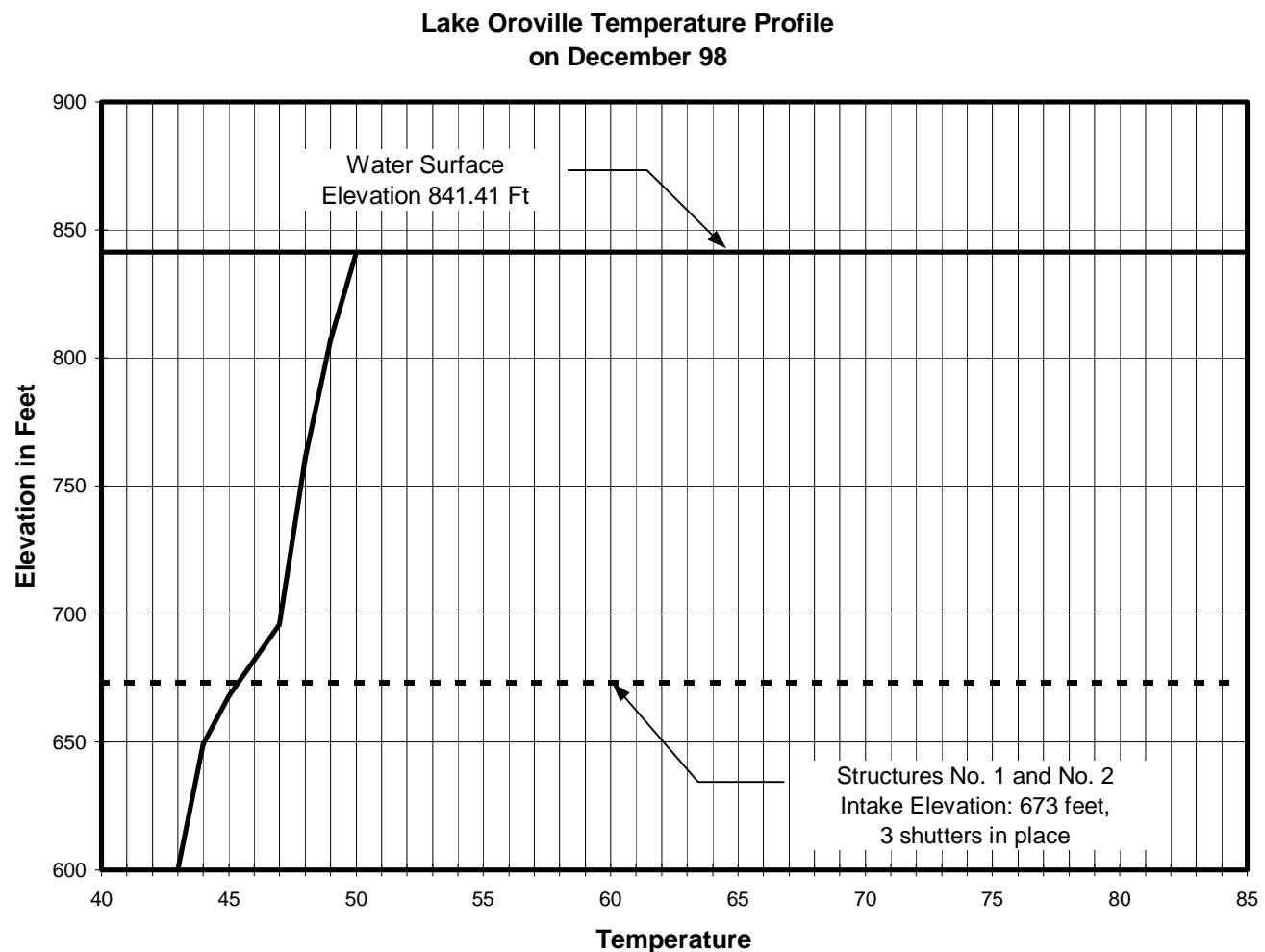
Table 7. Oroville-Thermalito Complex

Water Temperature Data

(in degrees Fahrenheit)

December 1998

Date	Mean Daily Temperature	
	Thermalito Afterbay Outlet	Fish Hatchery
1	49	50
2	49	49
3	49	49
4	47	49
5	46	50
6	47	50
7	47	50
8	47	49
9	46	49
10	46	49
11	47	48
12	47	48
13	47	48
14	47	48
15	47	49
16	48	49
17	48	48
18	47	48
19	46	47
20	45	47
21	42	48
22	43	48
23	43	48
24	43	47
25	43	47
26	44	47
27	44	46
28	44	47
29	45	47
30	45	47
31	45	46



Note: Water surface elevations on Table 4 are taken at Oroville Dam at midnight and may differ slightly from those shown on this table which are normally taken at mid-day and upstream from Oroville Dam.

Table 8. Aqueduct Operation
Delta Field Division
(in acre-feet except as noted)

December 1998

<u>North Bay Aqueduct</u>	
Pumped at Barker Slough Pumping Plant	2,820
Travis Turnout	121
Fairfield/Vacaville Turnout	0
Pumped at Cordelia Pumping Plant	2,610
Cordelia Pumping Plant Spillwater	0
Computed Losses (-) or Gains (+)	-89
Benicia Turnout	961
Vallejo Turnout	774
American Canyon 1	109
American Canyon 2	0
Napa City Turnout	766
Total Deliveries (After Cordelia)	2,610
Change in Storage at Napa Terminal Tank	0
<u>California Aqueduct</u>	
Amount Pumped at Banks Pumping Plan	128,026
Amount Pumped at South Bay Pumping Plant	7,126
Deliveries From California Aqueduct (Oak Flat Water District, Tracy Golf, Veterans Cemetery, and Musco Oliv	69
Inflow into California Aqueduct	0
Change in Storage	-298
Flow Past Check 12	120,050
Computed Losses (-) or Gains (+)	-1,079

Table 9. Delta Field Division Plant Data

(in acre-feet)

December 1998

Date	North Bay Aqueduct		California Aqueduct		South Bay Aqueduct			
	Barker Slough Pumping Plant	Cordelia Pumping Plant	Banks Pumping Plant		South Bay Pumping Plant	Del Valle Pumping Plant		
			Total	SWP		Into Lake	Into Aqueduct	Gravity Flow Through Plant Into Aqueduct
1	67	63	2,610	2,610	246	0	0	19
2	62	52	3,443	2,497	192	0	0	19
3	61	56	3,708	2,762	177	0	0	19
4	72	64	3,841	2,895	186	0	0	19
5	64	58	3,878	2,932	177	0	0	19
6	62	59	3,854	2,908	187	0	0	19
7	78	71	3,845	2,899	193	0	0	19
8	84	74	3,860	2,914	193	0	0	19
9	86	71	3,885	2,939	262	0	0	19
10	102	89	4,497	3,551	245	0	0	19
11	86	73	3,911	2,965	291	0	0	19
12	77	74	3,849	2,903	279	0	0	19
13	80	78	3,872	2,926	296	0	0	19
14	98	85	3,873	2,927	240	0	0	19
15	106	92	3,866	2,920	273	0	0	87
16	96	86	6,986	6,040	155	0	0	155
17	108	95	5,003	5,003	155	0	0	155
18	115	95	6,357	6,357	155	0	69	86
19	96	87	5,452	5,452	155	0	155	0
20	99	95	2,581	2,581	155	0	155	0
21	115	104	2,597	2,597	155	0	155	0
22	111	103	1,242	1,242	181	0	132	0
23	114	100	6,696	6,696	314	0	0	0
24	101	93	7,146	7,146	313	0	0	0
25	101	93	4,460	4,460	310	0	0	0
26	91	89	1,696	1,696	310	0	0	0
27	108	102	6,592	6,592	310	0	0	0
28	122	114	3,591	3,591	278	0	0	0
29	133	119	3,341	3,341	266	0	0	0
30	96	89	3,626	3,626	260	0	0	0
31	29	87	3,868	3,868	217	0	0	0
Total	2,820	2,610	128,026	113,836	7,126	0	666	749

Table 10. Clifton Court Forebay
Daily Operation of Gate:

December 1998

Date	Time Opened	Time Closed	Amount of inflow in Acre-Feet	Date	Time Opened	Time Closed	Amount of inflow in Acre-Feet
1	00:57	04:45	2,610	16	02:30	08:30	4,057
2	02:56	09:00	3,443	17	10:57	22:20	7,178
3	02:50	07:04	3,729	18	03:00 13:12 15:35	10:41 15:35	
4	03:21	09:45	3,949		18:05	21:30	9,270
5	00:05 04:30	01:00 10:32	3,964	19	04:00 14:25	12:01 15:10	5,582
6	00:05 05:47 20:26	01:10 11:10 ...	3,962	20	07:30 15:20 19:55	10:17 16:49 21:05	2,581
7	...	01:00		21	06:40 19:52	11:10 21:35	
	07:00	12:00	3,953				2,597
8	00:08 11:28 18:08	01:00 15:15 21:53		22	20:36	22:55	918
9	12:25 20:30	15:25 ...	3,968	23	10:48 17:20	14:00 22:46	6,307
10	...	01:03		24	11:35 18:14	15:55 23:46	
	13:13 21:15	16:50 ...	3,950				6,282
			3,785	25	12:19 20:12	16:20 ...	
11	...	02:05		26	...	00:30	
	09:45 14:23 23:35	10:30 17:32 ...	3,544		13:09	15:30	1,631
12	...	03:21		27	00:16 09:37	01:58 16:10	
	10:00 14:42	11:09 17:09	3,784				5,384
13	00:45 10:50 15:19	04:26 12:06 19:54	3,872	28	00:01 10:10 14:41	03:40 11:12 16:40	
				29	01:20 11:02 15:28	05:40 12:22 17:07	3,634
14	00:50 15:54	06:05 17:45	3,938	30	02:30 16:27	06:45 17:40	3,367
15	02:30 16:26	07:38 18:21	3,952	31	02:47 17:38	07:54 18:44	3,890

Table 11. Governor Edmund G. Brown California Aqueduct
 Delta Field Division, Monthly Deliveries

(In acre-feet)

Deliveries													
Reach No.	No.	Structure	Mile	Turnout	Total Diversions	Entitle-ment	USBR	Misc.	Loan Water	1997 Carryover Ent.			
1	1	Banks Pumping Plant	3.32		128,026								
		South Bay Pumping Plant	4.49	Bethany Reservoir Inlet	7,126								
		Check No. 1	5.95										
	2	Check No. 2	12.01										
	3		12.47	Musco Olive	36		36						
		Check No. 3	18.29										
	4		22.16	Tracy Golf & Country Club	10		10						
		Check No. 4	23.99										
	5	Check No. 5	29.73										
	6	Check No. 6	34.24										
	7		35.22	Turlock Fruit Company Inflow	0								
		Check No. 7	39.91										
2A	8		42.46	Oak Flat Water District-A	3	3	3						
			43.81	Oak Flat Water District-B	0								
			44.64	Oak Flat Water District-C	9		9						
		Check No. 8	45.97										
	9		46.18	Oak Flat Water District-D	9								
				Oak Flat Totals:	21		21	0	0	0			
		Check No. 9	51.30										
	10	Check No. 10	56.86										
	11	Check No. 11	61.40										
	12		66.14	Veteran's Cemetery	2		2						
		Check No. 12	66.71		120,050								
2B													

Table 12. South Bay Aqueduct
Delta Field Division, Monthly Deliveries

(In acre-feet)

December 1998

Reach No.	Operating Pool			Turnout	Total Diver- sions	Deliveries					
	Beginning and Ending					Entitle- ment	Ext. M & I				
	No.	Structure	Mile				Cry. Ovr.	Local	Recre- ation		
1	1	South Bay Pumping Plant	0.00	(into South Bay Aqueduct)	7,126	1	443	330	424		
			3.17	Granite - Vasco Rd. (Temp.)	0						
			3.18	Oakland Scavenger Zone 7	1						
	Check No. 1	3.91									
	Check No. 2	5.21									
2	3		7.21	Zone 7 Altamont	0	330	187	2	859		
		Check No. 3	9.49	Zone 7 Patterson Stored Exchange	0						
				Zone 7 Patterson Project Water	443						
	Check No. 4	10.68									
4	5	Check No. 5	12.29			2	424	424	424		
			13.55	Zone 7 Wente #1	0						
	6		14.16	Zone 7 Wente #2	0						
		Check No. 6	14.65								
	7		14.78	Zone 7 Arroyo Mocho	330						
		Check No. 7	16.38								
	8		16.57	Zone 7 Wente #3	0						
			16.69	Zone 7 Norman Nursery	0						
			16.70	Zone 7 Concannon Stored Exchange	0						
		Del Valle Branch Pipeline Junction	18.63	(Natural Flow into SB Aqueduct)	424						
				(Project Flow into SB Aqueduct)	991						
5	8	Del Valle Branch Pipeline	19.20	Arroyo Valle #1 & #2		18	2,208	2,208	2,208		
				Project Water:	187						
				Arroyo Valle #1 & #2							
				Stored Exchange	0						
				Lake Del Valle Recreation	0						
6	8	La Costa Tunnel	19.21	Zone 7 Wente #5	2	2	2,115	2,115	2,115		
				So. Livermore Project	859						
				So. Livermore Stored Released	424						
				So. Livermore Stored Exchanged	0						
7	8	Mission Tunnel	22.50	Zone 7 - Kalthrof Detjens	18	18	1,942	1,942	1,942		
				ACWD Vallecitos	2,208						
				City of San Francisco San Antonio	0						
8	8	Santa Clara Pipeline	25.97	ACWD - Bayside 1 & 2		1	1	1	1		
				Project Water:	2,115						
9	8	Santa Clara Pipeline	28.97	Inflow Released	0	1	1	1	1		
				Stored Exchange:	0						

Table 13. Lake Del Valle
Daily Operation

Capacity: 77,106 ac-ft

December 1998

Date	Water Surface Elevation (feet)	Storage	Storage Change	Inflow		Outflow					Precipitation (inches)
				Natural 1/ 3/	From South Bay Aqueduct	Arroyo Valle	South Bay Aqueduct	Recreation Deliveries 2/	Evaporation	Total Outflow	
Nov 30	678.89	25,220			0	0	19	0	2	21	0.12
1	678.97	25,260	40		0	0	19	0	1	20	0.00
2	678.98	25,265	5		0	0	19	0	0	19	0.32
3	679.04	25,296	31		0	0	19	0	2	21	0.00
4	679.06	25,306	10		0	0	19	0	2	21	0.00
5	679.07	25,311	5		0	0	19	0	2	21	0.00
6	679.10	25,326	15		0	0	19	0	2	21	0.18
7	679.08	25,316	-10		0	0	19	0	2	21	0.00
8	679.09	25,321	5		0	0	19	0	1	20	0.02
9	679.09	25,321	0		0	0	19	0	1	20	0.00
10	679.09	25,321	0		0	0	19	0	1	20	0.00
11	679.09	25,321	0		0	0	19	0	1	20	0.00
12	679.09	25,321	0		0	0	19	0	2	21	0.00
13	679.09	25,321	0		0	0	19	0	1	20	0.00
14	679.06	25,306	-15		0	0	19	0	1	20	0.27
15	678.87	25,210	-96		0	0	87	0	2	89	0.00
16	678.56	25,055	-155		0	0	155	0	2	157	0.00
17	678.27	24,911	-144		0	0	155	0	2	157	0.00
18	677.95	24,753	-158		0	0	155	0	2	157	0.00
19	677.63	24,596	-157		0	0	155	0	2	157	0.00
20	677.32	24,445	-151		0	0	155	0	2	157	0.06
21	677.00	24,290	-155		0	0	155	0	2	157	0.02
22	676.68	24,134	-156		0	0	132	0	3	135	0.00
23	676.69	24,139	5		0	0	0	0	1	1	0.00
24	676.69	24,139	0		0	0	0	0	2	2	0.00
25	676.70	24,144	5		0	0	0	0	1	1	0.00
26	676.72	24,153	9		0	0	0	0	1	1	0.00
27	676.73	24,158	5		0	0	0	0	0	0	0.00
28	676.75	24,168	10		0	0	0	0	1	1	0.00
29	676.77	24,178	10		0	0	0	1	1	2	0.00
30	676.77	24,178	0		0	0	0	1	1	2	0.00
31	676.77	24,178	0		0	0	0	1	1	2	0.00
Total			-1,042	424	0	0	1,415	3	48	1,466	0.99

1/ Total inflow from stream gaging station above Lang Canyon and accretions/depletions.

2/ To East Bay Regional Park District.

3/ Not available on a daily basis.

NR=No Records

Table 14. Consolidated State-Federal O'Neill Forebay

Daily Operations

December 1998

United States
Department of the Interior
Bureau of Reclamation
Central Valley Project

State of California
The Resources Agency
Department of Water Resources
State Water Project

Capacity: 56,430 Acre-feet

Date	Water Surface Elev. (in feet)	Storage (ac-ft)	Storage Change (ac-ft)	Inflow (cfs)				Outflow (cfs)				Computed Losses (-) Gains (+) (cfs)	
				Pump In 1/	O'Neill Pumping Generating Plant (Pumped)	Gianelli Pumping Generating Plant (Generation)	California Aqueduct	O'Neill Pumping Generating Plant (Generation)	Gianelli Pumping Generating Plant (Pumped)	Dos Amigos Pumping Plant	Deliv- eries 2/		
Nov 30	220.26	43,827											
1	220.53	44,531	704	0	0	1,250	1,116	183	0	1,745	5	-78	
2	220.61	44,740	209	0	0	613	1,586	182	0	1,765	5	-142	
3	220.94	45,603	863	0	0	700	1,929	175	0	1,993	5	-21	
4	220.34	44,036	-1,567	0	0	577	1,665	182	0	2,706	5	-139	
5	219.78	42,583	-1,453	0	0	0	1,876	175	0	2,414	6	-14	
6	219.06	40,737	-1,846	0	0	0	1,806	180	0	2,400	6	-151	
7	219.62	42,170	1,433	0	0	1,538	1,920	182	0	2,428	6	-120	
8	219.40	41,605	-565	0	0	1,367	2,016	163	0	3,129	6	-370	
9	220.67	44,897	3,292	0	0	2,089	1,786	162	0	2,442	6	395	
10	220.44	44,296	-601	0	0	436	2,220	151	0	2,611	6	-191	
11	221.22	46,337	2,041	0	0	2,566	1,650	148	0	2,854	6	-179	
12	221.13	46,101	-236	0	0	1,366	1,700	139	0	2,933	6	-107	
13	219.83	42,712	-3,389	0	0	0	1,977	156	0	3,432	7	-91	
14	219.56	42,016	-696	0	0	1,400	1,627	152	0	3,124	8	-94	
15	219.87	42,815	799	0	0	2,006	1,789	149	0	3,046	4	-193	
16	220.50	44,453	1,638	0	0	1,219	3,193	153	0	3,216	6	-211	
17	221.21	46,311	1,858	0	0	1,826	2,803	148	0	3,452	7	-85	
18	222.15	48,783	2,472	0	0	2,080	3,131	153	0	3,527	6	-279	
19	222.17	48,836	53	0	0	1,040	2,757	146	0	3,606	8	-10	
20	220.32	43,983	-4,853	0	0	1,434	1,116	138	0	4,104	5	-750	
21	222.38	49,394	5,411	0	0	5,408	1,239	362	113	3,316	6	-122	
22	220.83	45,315	-4,079	0	0	2,150	320	695	1,490	2,855	8	522	
23	220.84	45,341	26	0	0	234	2,926	613	0	2,253	7	-274	
24	222.63	50,060	4,719	0	0	2,749	3,779	444	1,165	2,204	6	-330	
25	222.82	50,566	506	0	0	0	2,456	412	0	1,605	6	-178	
26	223.35	51,982	1,416	0	0	2,839	707	418	2,078	586	6	256	
27	222.53	49,793	-2,189	0	0	0	2,867	337	2,632	1,157	5	160	
28	223.71	52,947	3,154	0	0	1,704	1,701	302	18	1,321	5	-169	
29	223.22	51,634	-1,313	0	0	2,319	1,404	309	2,125	2,104	5	158	
30	221.57	47,257	-4,377	0	0	0	1,712	314	425	3,197	5	22	
31	220.64	44,818	-2,439	0	0	0	1,749	320	0	2,611	5	-43	
Total				991	0	0	40,910	60,523	7,743	10,046	80,136	183	-2,825
Mean cfs ac-ft				---	0	0	1,320	1,952	250	324	2,585	6	-91
				991	0	0	81,142	120,050	15,364	19,927	158,953	362	-5,595

1/ Pump-in located at Mile 79.67R.

2/ Includes 144 AF delivered to DFG at O'Neill Forebay and 111 AF to Parks and Recreation and 7 AF to P&R Cattle Program. These totals have been included for clarity.

Table 15. Consolidated State-Federal San Luis Reservoir

Daily Operations

December 1998

United States

Department of the Interior

Bureau of Reclamation

Central Valley Project

State of California

The Resources Agency

Department of Water Resources

State Water Project

Capacity: 2,027,835 ac-ft

Date	Water Surface Elev. (in feet)	Storage (ac-ft)	Storage Change (ac-ft)	Inflow (cfs)	Outflow (cfs)			Computed Losses (-) Gains (+) (cfs)
				Gianelli Pumping Generating Plant (Pumped)	Gianelli Pumping Generating Plant (Generation)	Pacheco Tunnel 1/	Parks and Rec. Del. 2/	
Nov 30	538.49	1,970,810						
1	538.32	1,968,672	-2,138	0	1,250	5	0	177
2	538.21	1,967,288	-1,384	0	613	43	1	-41
3	538.08	1,965,654	-1,634	0	700	75	0	-49
4	537.96	1,964,146	-1,508	0	577	75	0	-108
5	537.92	1,963,643	-503	0	0	75	0	-179
6	537.91	1,963,518	-125	0	0	77	0	14
7	537.62	1,959,875	-3,643	0	1,538	77	1	-221
8	537.40	1,957,113	-2,762	0	1,367	79	0	54
9	537.06	1,952,847	-4,266	0	2,089	78	0	16
10	536.97	1,951,719	-1,128	0	436	64	0	-69
11	536.55	1,946,455	-5,264	0	2,566	78	0	-10
12	536.32	1,943,574	-2,881	0	1,366	77	0	-9
13	536.29	1,943,199	-375	0	0	77	1	-111
14	536.06	1,940,320	-2,879	0	1,400	77	0	26
15	535.73	1,936,192	-4,128	0	2,006	48	0	-27
16	535.52	1,933,567	-2,625	0	1,219	72	1	-31
17	535.21	1,929,694	-3,873	0	1,826	75	0	-52
18	534.88	1,925,574	-4,120	0	2,080	73	0	76
19	534.70	1,923,328	-2,246	0	1,040	75	0	-17
20	534.53	1,921,208	-2,120	0	1,434	74	1	440
21	533.65	1,910,245	-10,963	113	5,408	116	0	-116
22	533.42	1,907,383	-2,862	1,490	2,150	144	0	-639
23	533.34	1,906,388	-995	0	234	117	0	-151
24	533.06	1,902,907	-3,481	1,165	2,749	152	0	-19
25	533.02	1,902,409	-498	0	0	144	1	-106
26	532.88	1,900,670	-1,739	2,078	2,839	144	0	28
27	533.16	1,904,150	3,480	2,632	0	146	0	-732
28	532.93	1,901,291	-2,859	18	1,704	154	0	399
29	532.77	1,899,303	-1,988	2,125	2,319	175	1	-632
30	532.69	1,898,310	-993	425	0	179	0	-747
31	532.68	1,898,186	-124	0	0	233	0	170
Total			-72,624	10,046	40,910	3,078	7	-2,666
Mean cfs			---	324	1,320	99	0	-86
ac-ft			-72,624	19,927	81,142	6,100	13	-5,296

1/ Pacheco Tunnel, San Felipe Split; Santa Clara: 5,265 AF, San Benito: 835 AF.

2/ This water was delivered throughout the year but recorded only in December for clarity.

Table 16. San Luis Field Division Plant Data

(in acre-feet)

December 1998

Date	Dos Amigos Pumping Plant		Gianelli Pumping - Generating Plant				San Felipe Project
	Total Pumping	SWP Pumping 1/, 2/	Total Generation	SWP Generation 1/, 2/	Total Pumping	SWP Pumping 1/, 2/	CVP
1	3,461	2,304	2,479	-83	0	0	9
2	3,500	2,358	1,215	1,215	0	0	85
3	3,954	2,543	1,388	1,388	0	0	149
4	5,368	3,917	1,145	1,145	0	0	148
5	4,789	3,370	0	0	0	0	148
6	4,760	3,399	0	0	0	0	152
7	4,816	2,903	3,050	807	0	0	153
8	6,206	4,218	2,711	981	0	0	156
9	4,844	2,896	4,143	1,494	0	0	154
10	5,178	2,840	864	864	0	0	126
11	5,660	3,311	5,089	2,201	0	0	155
12	5,818	3,490	2,710	-125	0	0	153
13	6,807	4,268	0	0	0	0	152
14	6,197	3,618	2,777	-22	0	0	152
15	6,042	3,555	3,979	1,181	0	0	95
16	6,378	3,824	2,418	-34	0	0	143
17	6,848	3,488	3,622	-75	0	0	148
18	6,996	3,553	4,126	-116	0	0	145
19	7,153	3,597	2,063	-92	0	0	148
20	8,141	4,749	2,845	1,755	0	0	147
21	6,577	3,303	10,726	5,278	225	225	231
22	5,663	2,261	4,265	18	2,956	2,956	286
23	4,468	1,188	464	464	0	0	233
24	4,371	989	5,452	-579	2,311	2,311	302
25	3,184	124	0	0	0	0	286
26	1,163	120	5,632	-48	4,121	4,121	286
27	2,295	186	0	0	5,220	5,220	289
28	2,621	494	3,380	-80	36	36	305
29	4,173	999	4,599	-18	4,215	4,215	347
30	6,342	4,051	0	0	843	843	355
31	5,180	2,968	0	0	0	0	462
Total	158,953	84,884	81,142	17,519	19,927	19,927	6,100

1/ Negative values may appear in SWP columns and indicate a mismatch of scheduled CVP energy and actual pumping;

adjustments to SWP water shares are made to balance the mismatch.

2/ Provisional, subject to change.

Table 17. Consolidated State-Federal Los Banos Reservoir

Daily Operations
December 1998

United States
Department of the Interior
Bureau of Reclamation
Central Valley Projec

State of California
The Resources Agency
Department of Water Resources
State Water Projec

Capacity: 34,560 ac-ft

Date	Water Surface Elev. (in feet)	Storage (ac-ft)	Storage Change (ac-ft)	Estimated Inflow (cfs)	Estimated Outflow (cfs)		Computed Losses (-) Gains (+) (ac-ft)
					Spill	Outlet	
Nov 30	327.56	20,463					
1	327.13	20,262	-201	0	0	100	-3
2	326.96	20,183	-79	2	0	42	0
3	326.96	20,183	0	0	0	0	0
4	326.96	20,183	0	0	0	0	0
5	326.99	20,197	14	7	0	0	0
6	326.97	20,188	-9	0	0	0	-9
7	326.97	20,188	0	0	0	0	0
8	326.99	20,197	9	5	0	0	-1
9	326.99	20,197	0	0	0	0	0
10	327.01	20,206	9	5	0	0	-1
11	327.02	20,211	5	3	0	0	-1
12	327.02	20,211	0	0	0	0	0
13	327.04	20,220	9	5	0	0	-1
14	327.04	20,220	0	0	0	0	0
15	327.05	20,225	5	3	0	0	-1
16	327.07	20,234	9	5	0	0	-1
17	327.08	20,239	5	3	0	0	-1
18	327.09	20,244	5	3	0	0	-1
19	327.07	20,234	-10	0	0	0	-10
20	327.05	20,225	-9	0	0	0	-9
21	327.05	20,225	0	0	0	0	0
22	327.06	20,230	5	3	0	0	-1
23	327.06	20,230	0	0	0	0	0
24	327.08	20,239	9	5	0	0	-1
25	327.09	20,244	5	3	0	0	-1
26	327.10	20,248	4	2	0	0	0
27	327.10	20,248	0	0	0	0	0
28	327.12	20,258	10	5	0	0	0
29	327.14	20,267	9	5	0	0	-1
30	327.14	20,267	0	0	0	0	0
31	327.17	20,281	14	7	0	0	0
Total			-182	71	0	142	---
Mean cfs-days			---	2	0	5	---
Acre-feet			-182	141	0	282	-43

Table 18. Consolidated State-Federal Little Panoche Reservoir

Daily Operations

December 1998

United States
Department of the Interior
Bureau of Reclamation
Central Valley Project

State of California
The Resources Agency
Department of Water Resources
State Water Project

Date	Water Surface Elev. (in feet)	Storage (ac-ft) 1/	Storage Change (ac-ft) 1/	Computed Inflow (cfs)	Estimated Outflow (cfs)		Computed Losses (-) Gains (+) (ac-ft) 1/
					Spill	Outlet	
Nov 30	602.80	838					
1	Not Observed			5	0	5	
2	Not Observed			5	0	5	
3	Not Observed			5	0	5	
4	602.70	832	-6	2	0	5	0
5	Not Observed			5	0	5	
6	602.70	832	0	5	0	5	0
7	Not Observed			5	0	5	
8	Not Observed			5	0	5	
9	Not Observed			5	0	5	
10	Not Observed			5	0	5	
11	602.70	832	0	5	0	5	0
12	Not Observed			5	0	5	
13	Not Observed			5	0	5	
14	Not Observed			5	0	5	
15	Not Observed			5	0	5	
16	Not Observed			5	0	5	
17	Not Observed			5	0	5	
18	602.70	832	0	5	0	5	0
19	Not Observed			5	0	5	
20	Not Observed			5	0	5	
21	Not Observed			5	0	5	
22	Not Observed			5	0	5	
23	Not Observed			5	0	5	
24	Not Observed			5	0	5	
25	602.70	832	0	5	0	5	0
26	Not Observed			5	0	5	
27	Not Observed			5	0	5	
28	Not Observed			5	0	5	
29	Not Observed			5	0	5	
30	Not Observed			5	0	5	
31	602.70	832	0	5	0	5	0
Total			-6	152	0	155	---
Mean cfs ac-ft			---	5	0	5	---
			-6	301	0	307	0

1/ Not available on a daily basis

Table 19a. Governor Edmund G. Brown California Aqueduct

San Luis Field Division, Monthly Deliveries

(In acre-feet)

December 1998

Reach No.	Operating Pool			Turnout	Total Diver- sions	Deliveries					
	Beginning and Ending					USBR	Transfer	DWR	USBR		
	No.	Structure	Mile			Recreation	Recreation				
2B	12	Check No. 12	66.71		120,050						
3	13	O'Neill Forebay		Department of Parks and Recreation	3			2	1		
		Outlet Check No. 13	70.85	Department of Fish & Game	144		79		65		
		Thru	70.91	San Luis Water District	100	100					
			85.08	(Floodwater Inflow)	0						
				Reach 3 Subtotal:	247	100	0	81	66		
		Dos Amigos Pumping Plant	86.73		158,953						
						1,681					
4	14	Thru	89.03	San Luis Water District	1,681						
			94.06			406					
			89.66	Pacheco Water District	406						
			89.67			3					
			89.68	Panoche Water District	3						
		Thru	89.70	City of Dos Palos	81	81					
			95.06								
		Thru	98.15	San Luis Water District	173	173					
			104.20			1,453					
			96.15	Panoche Water District	1,453						
			102.64	(Floodwater Inflow)	0						
			102.64	Broadview Water District	0						
	15	Thru	105.22	Westlands Water District	6,233	6,233					
			108.64								
			108.50								
				Pacheco Water District Total:	406	406	0	0	0		
				Broadview Water District Total:	0	0	0	0	0		
				City of Dos Palos Total:	81	81	0	0	0		
				SLWD Reach 4 Subtotal:	1,854	1,854	0	0	0		
				Panoche Water District Total:	1,456	1,456	0	0	0		
				SLWD Total:	1,954	1,954	0	0	0		
				Westlands WD Reach 4 Subtotal:	6,233	6,233	0	0	0		

Table 19b. Governor Edmund G. Brown California Aqueduct

San Luis Field Division, Monthly Deliveries (Continued)

(In acre-feet)

December 1998

Reach No.	Operating Pool			Turnout	Total Diver-sions	Deliveries							
	Beginning and Ending					USBR	Transfer	DWR	USBR				
	No.	Structure	Mile					Recreation	Recreation				
5	16		110.52	(Reverse flow, Kings River)	0	9,343	7,263						
			Thru	Westlands Water District	9,343								
			122.05	Department of Fish and Game	0								
		Check No. 16	122.07										
	17		124.18	Westlands Water District	7,263	7,595	5,859						
			132.74										
		Check No. 17	132.95										
	18		133.81	Westlands Water District	7,595	306							
			Thru										
			142.61										
		Pleasant Valley Pumping Plant	143.16	Westlands Water District	5,859								
			143.16	City of Coalinga	306								
6	19		Check No. 18	143.23		30,060	0	0	0				
					Westlands WD Reach 5 Subtotal:								
					30,060								
7	20		145.26	Westlands Water District	17,613	17,613	0	0	0				
			Thru										
			151.19										
		Check No. 19	155.64										
	21			Westlands WD Reach 6 Subtotal:	17,613	17,613	0	0	0				
		Check No. 20	164.69										
	21		164.79	City of Avenal	177	177	3,598						
			167.04	Westlands Water District	3,598								
			Thru										
			171.67										
		Check No. 21	172.40		92,258								
				Reach 7 Total:	14,352	14,352	0	0	0				
				Westlands WD Total:	68,016	68,016	0	0	0				
				City of Coalinga Total:	306	306	0	0	0				
				City of Huron Total:	65	65	0	0	0				
				City of Avenal Total:	177	177	0	0	0				
				Phase I Water Total:	0	0	0	0	0				
				Total San Luis Field Division Deliveries:	72,608	72,461	0	81	66				

Table 20. Consolidated State-Federal San Luis Canal 1/

Daily Operations
December 1998

United States
Department of the Interior
Bureau of Reclamation
Central Valley Project

State of California
The Resources Agency
Department of Water Resources
State Water Project

Date	Storage In Canal (ac-ft)	Storage Change (ac-ft)	Inflow (cfs)		Outflow (cfs)				Computed Losses (-) Gains (+) (cfs)
			Non- Project 2/	Dos Amigos Pumping Plant	San Luis Water Dist. 3/	Panoche Water District	Westlands Water Dist. 4/	Flow Past Check 21	
Nov 30	27,544								
1	27,459	-85	0	1,745	29	28	979	1,112	360
2	26,598	-861	0	1,765	39	20	614	1,393	-133
3	26,534	-64	0	1,993	46	29	887	1,117	54
4	26,925	391	0	2,706	47	30	894	1,474	-64
5	26,480	-445	0	2,414	39	34	1,086	1,627	148
6	27,183	703	0	2,400	37	39	1,082	973	85
7	26,738	-445	0	2,428	39	34	1,071	1,505	-3
8	27,293	555	0	3,129	36	31	1,332	1,531	81
9	26,781	-512	0	2,442	45	32	1,513	1,412	302
10	26,828	47	0	2,611	46	27	1,454	1,162	101
11	26,664	-164	0	2,854	52	31	1,396	1,478	20
12	26,336	-328	0	2,933	51	38	1,601	1,590	182
13	26,780	444	0	3,432	30	27	1,482	1,555	-114
14	26,764	-16	0	3,124	55	32	1,451	1,644	49
15	26,500	-264	0	3,046	34	27	1,587	1,839	308
16	26,360	-140	0	3,216	53	22	1,425	1,811	24
17	26,659	299	0	3,452	64	27	1,573	1,801	164
18	26,409	-250	0	3,527	37	62	1,739	2,116	301
19	26,591	182	0	3,606	44	36	1,543	1,838	-54
20	27,429	838	0	4,104	47	22	1,547	2,200	134
21	27,570	141	0	3,316	46	22	1,401	2,055	280
22	28,589	1,019	0	2,855	38	15	1,053	1,266	31
23	28,370	-219	0	2,253	38	12	1,041	1,864	591
24	29,543	1,173	0	2,204	51	6	561	1,309	315
25	30,238	695	0	1,605	13	5	485	1,231	479
26	28,510	-1,728	0	586	28	4	472	1,139	186
27	27,551	-959	0	1,157	32	7	507	1,338	243
28	26,799	-752	0	1,321	15	9	558	983	-136
29	26,254	-545	0	2,104	18	9	633	1,435	-283
30	27,539	1,285	0	3,197	15	9	635	1,344	-546
31	27,982	443	0	2,612	16	8	965	1,372	-27
Total		438	0	80,137	1,180	734	34,567	46,513	3,078
Mean (cfs)		- - -	0	2,579	40	25	1,155	1,513	99
Acre-feet		438	0	158,953	2,341	1,456	68,564	92,258	6,104

1/ San Luis Canal includes Pools 14 through 21 of the California Aqueduct.

2/ Pump In of Non-Project Water (0 AF @ Lat.7L) and Flood Water (0 AF) is included in the gain or loss

3/ Includes 403 AF AG & 1 AF M&I to Pacheco W.D. and 81 AF to the City of Dos Palos.

4/ Includes 65 AF to the City of Huron, 177 AF to the City of Avenal, 306 AF to the City of Coalinga, 0 AF Phase I Water @ Lat. 13R, and 0 AF to Broadview W.D.

Table 21. San Joaquin Field Division Plant Data

(in acre-feet)

December 1998

Date	Coastal Aqueduct					California Aqueduct			
	Las Perillas Pumping Plant	Badger Hill Pumping Plant	Devil's Den Pumping Plant	Bluestone Pumping Plant	Polonio Pass Pumping Plant	Buena Vista Pumping Plant	Teerink Pumping Plant	Chrisman Pumping Plant	Edmonston Pumping Plant
1	71	71	40	40	40	654	562	521	549
2	41	41	20	20	20	452	370	365	378
3	64	64	46	44	47	420	510	522	602
4	44	44	20	22	25	781	730	677	733
5	102	102	46	46	46	525	450	422	439
6	96	96	46	46	46	291	257	225	218
7	146	146	34	36	38	895	850	798	870
8	165	165	30	31	32	525	510	468	461
9	189	189	38	38	38	431	378	360	344
10	145	145	6	6	7	396	441	281	300
11	177	177	45	46	46	420	320	275	300
12	203	203	44	46	48	420	410	299	300
13	223	223	46	46	46	82	176	97	82
14	208	208	31	32	32	212	266	151	164
15	222	222	41	41	42	577	601	469	494
16	177	177	29	29	30	380	308	228	246
17	160	160	26	26	27	344	205	179	191
18	175	175	44	46	48	367	145	154	191
19	188	188	44	46	48	420	200	154	218
20	197	197	46	46	47	315	142	128	164
21	185	185	43	42	44	684	589	539	622
22	76	76	29	29	30	599	490	469	491
23	37	37	17	17	18	710	482	384	352
24	63	63	40	42	44	568	366	382	346
25	41	41	25	24	25	661	408	330	320
26	62	62	44	46	48	499	381	335	351
27	62	62	46	46	46	741	694	666	663
28	71	71	40	42	44	532	564	471	494
29	58	58	35	35	35	605	454	469	482
30	48	48	25	27	29	1,102	936	847	845
31	84	84	46	46	46	945	850	796	886
Total	3,780	3,780	1,112	1,129	1,162	16,553	14,045	12,461	13,096

Table 22a. Governor Edmund G. Brown California Aqueduct

San Joaquin Field Division, Monthly Deliveries

(In acre-feet)

December 1998

Reach No.	Operating Pool			Turnout	Total Diversions	Deliveries					
	Beginning and Ending		Structure			Entitlement	USBR	Transfer 1/	Exchange	MWD Ent.	
	No.		Mile								
7	21	Check No. 21		172.40	92,258						
8C	22			Empire West Side Irrig. Dist. TL - A County of Kings TL - A TLBWSD TL-A 175.18 DRWD - 1 177.54 DRWD - 1B 180.65 DRWD - 1A DRWD - SB 182.99 DRWD - 2 183.00 Tulare Lake Basin WSD TL - B 184.63 Coastal Branch Dudley Ridge Water Dist. DRWD - 3	0 968 0 62 65 15 502 907 15,546 3,780 618 2,169 16,514	568 62 65 15 502 907 310 100 15,136	400				
8D				184.78 Dudley Ridge Reach 8D Total: Tulare Lake Basin WSD Total:	2,169 16,514	618	2,169 878	0 500	0 15,136	0 0	
31A			Check No. 22	184.82							
9	23			Kern County Water Agency Lost Hills Water Dist. - 1 Kern County Water Agency Lost Hills Water Dist. - 2 Kern County Water Agency Lost Hills Water Dist. - 3 Kern County Water Agency Berrenda Mesa - 2 Kern County Water Agency Lost Hills Water Dist. - 4 K.C.W.A. Reach 9 Subtotal:	1,106 4 778 0 567 2,455	1,106 4 778 567 2,455	0 0	0 0	0 0	0 0	
10A	24			Check No. 23 Kern County Water Agency Lost Hills Water Dist. - 7 Kern County Water Agency Lost Hills Water Dist. - 5 Kern County Water Agency Lost Hills Water Dist. - 6 Kern County Water Agency Lost Hills Water Dist. - 8 Check No. 24	142 2,693 66 12 848 602	142 2,693 66 12 848	0 0	0 0	0 0	0 0	
10A	25			Check No. 24 Kern County Water Agency Belridge Water Storage Dist. - 1A Kern National Wildlife Refuge USBR BV-1B 209.78 Kern County Water Agency Buena Vista WSD 1B 209.80 KCWA Semitropic WSD KCWA Semitropic WSD Penstocks USBR Total: K.C.W.A. Reach 10A Subtotal:	12 848 602 0 0 848 3,515	12 848 602 0 0 0 3,515	848 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	

1/ Includes 400 AF of KCWA entitlement and 100 AF of San Luis Obispo County entitlement delivered to TLBWSD.

Table 22b. Governor Edmund G. Brown California Aqueduct

San Joaquin Field Division, Monthly Deliveries (Continued)

(In acre-feet)

December 1998

Reach No.	Operating Pool			Turnout	Total Diversions	Deliveries					
	Beginning and Ending		Structure			Entitlement	Inter-ruptible Ent.	MWD Ent. Exch.	Exchange	MWD Ent.	
	No.	Structure	Mile								
11B	25		Kern County Water Agency Belridge - 2	210.75	0	1,125	1,125	0	0	0	
			Kern County Water Agency Belridge - 3	214.11	1,125						
			Kern County Water Agency Belridge - 4	216.62	0		1,114	1,114	0	0	
			Kern County Water Agency Belridge - 5	217.13	1,114						
			Kern County Water Agency Belridge - 5D	Check No. 25	393	393					
			K.C.W.A. Reach 11B Subtotal:	217.79	2,632	2,632	0	0	0	0	
			Kern County Water Agency Belridge - 6	219.58	0						
12D	26		Check No. 26	224.92							
12E	27		Kern County Water Agency Buena Vista - 6	230.37	0	16,453	16,453	0	0	0	
			Check No. 27	231.73							
			Kern County Water Agency Buena Vista - 2	235.75	0						
			Kern County WA CVC	238.04	16,453						
			DRWD CVC		0						
	28		Tulare Co.		0						
			Lower Tule River		0						
			Fresno Co.		0						
			Pixley ID		0						
			Hacienda DWR Wells		0						
			Check No. 28	238.11							
			1/ Arvin Edison Total:		0	0	0	0	0	0	
			Reach 12E Subtotal:		16,453	16,453	0	0	0	0	
13B	29		Kern River Intertie (inflow)	241.02	0	8,442	8,442	0	0	0	
			KCWA Buena Vista WSD - 7	242.85	8,442						
			KCWA Buena Vista WSD - 5	243.09	5,714		5,714	7,197	0	0	
			Kern County Water Agency Buena Vista - 3	Check No. 29	7,197						
			Buena Vista WSD	244.54	0						
	30		Kern County Water Agency Buena Vista - 4	249.85	2,211	2,211	2,211	0	0	0	
			Buena Vista Pumping Plant	250.99	16,553						
			K.C.W.A. Reach 13B Subtotal:		23,564	23,564	0	0	0	0	
14A	31		Kern County Water Agency West Kern - 2	254.47	0	200	200	0	0	0	
			Kern County Water Agency Wheeler Ridge-Maricopa - 2	256.11	200						

1/ Arvin Edison Contractors include Rag Gulch WD, Kern-Tulare WD, Fresno County, Hills Valley ID, Tri Valley WD, Tulare County, Lower Tule River ID, and Pixley ID.

Table 22c. Governor Edmund G. Brown California Aqueduct

San Joaquin Field Division, Monthly Deliveries (Continued)

(In acre-feet)

December 1998

Reach No.	Operating Pool			Turnout	Total Diversions	Deliveries					
	Beginning and Ending		Structure			Entitle-ment	Inter-ruptible Ent.	MWD	Exchange	MWD Ent.	
	No.	Structure	Mile	Ent. Exch.							
14A	31	Check No. 31	256.14			2	446				
	32		258.61	Kern County Water Agency Wheeler Ridge-Maricopa - 3	2						
			260.44	Kern County Water Agency Wheeler Ridge-Maricopa - 4	446						
		Check No. 32	261.72								
				KCWA Reach 14A Subtotal:	648		648	0	0	0	
14B	33		264.42	Kern County Water Agency Wheeler Ridge-Maricopa - 5	646	165	895				
			266.91	Kern County Water Agency Wheeler Ridge-Maricopa - 6	165						
		Check No. 33	267.36								
	34		270.24	Kern County Water Agency Wheeler Ridge-Maricopa - 7	895						
			271.27								
				Reach 14B Total:	1,706		1,706	0	0	0	
14C	35		272.39	Kern County Water Agency Wheeler Ridge-Maricopa - 8	404	520	924				
			276.09	Kern County Water Agency Wheeler Ridge-Maricopa - 9	520						
				Reach 14C Total:	924			0	0	0	
		Teerink Pumping Plant	278.13		14,045						
15A	36		279.02	Kern County Water Agency Wheeler Ridge-Maricopa - 9A	22	602	624				
			280.06	Kern County Water Agency Wheeler Ridge-Maricopa - 10	602						
				Reach 15-A Total:	624			0	0	0	
		Chrisman Pumping Plant	280.36		12,461						
16A	37		282.06	Kern County Water Agency Wheeler Ridge-Maricopa - 11	0	1	26				
			283.95								
			285.01	Kern County Water Agency Wheeler Ridge-Maricopa - 12	1						
	38		286.39	Kern County Water Agency Wheeler Ridge-Maricopa - 13A	0						
			287.06	Kern County Water Agency Wheeler Ridge-Maricopa - 13	0						
		Check No. 38	287.09								
17E	39		287.62	Kern County Water Agency Wheeler Ridge-Maricopa - 13B	26	239	266				
			290.21								
			291.26	Kern County Water Agency Wheeler Ridge-Maricopa - 14	239			0	0	0	
	40		293.07	Kern County Water Agency Wheeler Ridge-Maricopa - 15	0						
				Kern County Water Agency Tehachapi Cummings CWD	0						
				K.C.W.A. Reach 16A Subtotal:	266			0	0	0	
		Edmonston Pumping Plant	293.45		13,096						

Table 23. Governor Edmund G. Brown California Aqueduct

San Joaquin Field Division, Monthly Deliveries (Coastal Branch)

(In acre-feet)

December 1998

Reach No.	Operating Pool		Turnout	Total Diversions	Deliveries					
	Beginning and Ending				Entitle-ment	Inter-ruptible Ent.	MWD Ent.	Exchange	Purchase Pool B	
	No.	Structure	Mile							
31A	C-1	Coastal Branch Control	0.02		3,780					
		Las Perillas Pumping Plant	1.16		3,780					
	C-2		3.79	Green Valley Water District	0					
		Badger Hill Pumping Plant	4.27		3,780					
	C-3	Coastal Check No. 3	7.21							
	C-4		9.34	Castaic Lake WA (Devil's Den WD #1)	0					
		Coastal Check No. 4	9.34							
	C-5	Coastal Check No. 5	12.20							
	C-6		13.30	Kern County Water Agency Berrenda Mesa - 3	382	382				
			14.83	Kern County Water Agency Berrenda Mesa - DD	0					
				Kern County Water Agency Berrenda Mesa - PO	2,206	2,206				
		Devil's Den Pumping Plant	14.86		1,112					
				K.C.W.A. Reach 31A Subtotal:	2,588	2,588	0	0	0	
				1/ K.C.W.A. Total:	55,375	55,375	0	0	0	
33A	C-7	Bluestone Pumping Plant	19.05		1,129					
	C-8	Polonio Pass Pumping Plant	26.54		1,162					
	C-9	Tank Site 1	27.81	(CCWA) Polonio Pass Treatment Plant						
	C-10	Shandon T.O.	38.23	Santa Barbara County (CCWA)	1,022	1,022				
		Tank Site 2	58.63	Central Coast:	0					
34	C-11	Chorro Valley T.O.	69.31	San Luis Obispo County (CCWA)	146	146				
		Energy Dissipater	78.12							
	Lopez T.O.	85.86		SLOCFC & WCD	0					
35	C-12			CCWA Total:	1,168	1,168	0	0	0	
		Guadalupe T.O.	102.70	SBCFC & WCD	0					
		Santa Maria T.O.	107.43	SBCFC & WCD	0					
		So. Cal. Water T.O.	109.20	SBCFC & WCD	0					
38				SBCFC & WCD Total:	0	0	0	0	0	
		Tank Site 5	115.42							

1/ DWR delivered additional water for Kern County WA to the following contractors: 1,000 AF to MWD; and 15,536 AF to TLBWS.

Table 24. Southern Field Division Plant Data

(in acre-feet)

December 1998

Date	West Branch					East Branch								
	Oso Pumping Plant	Warne Powerplant		Castaic Powerplant		Alamo Powerplant			Pearblossom Pumping Plant	Mojave Siphon Powerplant			Devil Canyon Powerplant Generation	
		Generation	Leakage	Generation	Pumpback	Bypass Through Plant	Cottonwood Chute	Generation		Leakage	Bypass Flume			
1	0	0	0	3,510	3,498	520	0	0	433	0	11	0	385	
2	0	0	0	3,341	2,131	370	0	0	218	0	10	0	259	
3	0	0	0	3,564	1,978	515	0	0	302	475	0	6	174	
4	204	0	0	3,402	3,023	383	0	62	341	423	42	0	114	
5	0	0	0	2,722	2,547	485	0	0	310	378	0	0	102	
6	0	0	0	2,615	3,648	150	0	0	93	0	13	0	447	
7	0	0	0	3,712	1,723	822	0	0	731	807	0	33	350	
8	0	0	0	1,892	2,902	446	0	0	305	360	0	18	257	
9	0	0	4	2,263	1,012	374	0	0	209	0	12	43	218	
10	0	0	0	1,364	1,537	275	0	0	187	0	8	54	143	
11	0	0	0	1,730	1,817	310	0	0	185	179	0	44	166	
12	0	0	0	148	1,151	341	0	0	185	215	0	61	358	
13	0	0	0	711	4,365	98	0	0	0	0	0	50	0	
14	0	0	0	1,726	2,718	100	0	0	52	0	9	64	228	
15	0	0	0	2,169	961	411	0	0	371	499	0	23	592	
16	0	0	0	3,267	1,052	224	0	0	167	0	9	45	5	
17	0	0	19	3,109	1,378	187	0	0	0	0	0	41	46	
18	0	0	0	1,550	1,605	109	0	0	138	0	7	39	71	
19	0	0	0	1,837	3,714	236	0	0	93	0	2	43	88	
20	0	0	0	2,660	3,871	154	0	0	69	0	2	56	0	
21	0	0	0	6,692	3,216	565	0	0	489	464	0	12	155	
22	0	0	0	4,845	3,867	423	0	0	382	415	0	19	389	
23	0	0	0	2,805	2,339	325	0	0	236	237	0	30	141	
24	0	0	0	1,974	1,362	337	0	0	208	0	9	36	360	
25	0	0	0	2,006	5,215	287	0	0	162	0	10	40	169	
26	0	0	0	3,639	2,682	336	0	0	208	147	0	46	502	
27	0	0	0	2,448	4,682	631	0	0	555	232	0	0	145	
28	0	0	0	3,024	2,750	493	0	0	492	522	0	42	395	
29	0	0	0	2,710	2,139	447	0	0	329	671	0	23	389	
30	0	0	0	3,172	1,221	771	0	0	738	724	0	9	311	
31	0	0	0	1,629	1,103	820	0	0	701	831	0	27	358	
Total	204	0	23	82,236	77,207	11,945	0	62	8,889	7,579	144	904	7,317	

Table 25. Pyramid Lake Daily Operation

Capacity: 171,200 ac-ft

(in acre-feet except as noted)

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Inflow			Outflow			Computed Losses (-) Gains (+)	
				Project		Natural	Project		Natural		
				Castaic Powerplant Pumpback	Warne Powerplant	Stream Flow	Castaic Powerplant Generation	Recreation Deliveries	To Piru Creek		
Nov 30	2573.51	164,169									
1	2573.45	164,093	-76	3,498	0	71	3,510	0	198	63	
2	2572.44	162,822	-1,271	2,131	0	84	3,341	0	198	53	
3	2571.06	161,096	-1,726	1,978	0	72	3,564	0	198	-14	
4	2570.66	160,598	-498	3,023	0	63	3,402	0	198	16	
5	2570.48	160,374	-224	2,547	0	63	2,722	0	198	86	
6	2571.24	161,320	946	3,648	0	63	2,615	0	198	48	
7	2569.58	159,258	-2,062	1,723	0	60	3,712	0	180	47	
8	2570.41	160,287	1,029	2,902	0	59	1,892	0	60	20	
9	2569.47	159,122	-1,165	1,012	4	59	2,263	0	60	83	
10	2569.61	159,295	173	1,537	0	59	1,364	0	60	1	
11	2569.79	159,518	223	1,817	0	59	1,730	0	60	137	
12	2570.45	160,337	819	1,151	0	59	148	0	60	-183	
13	2573.61	164,295	3,958	4,365	0	61	711	0	60	303	
14	2574.41	165,308	1,013	2,718	0	61	1,726	0	60	20	
15	2573.49	164,144	-1,164	961	0	63	2,169	0	60	41	
16	2571.89	162,133	-2,011	1,052	0	61	3,267	0	60	203	
17	2570.51	160,411	-1,722	1,378	19	61	3,109	0	60	-11	
18	2570.54	160,449	38	1,605	0	61	1,550	0	60	-18	
19	2572.14	162,446	1,997	3,714	0	59	1,837	0	60	121	
20	2573.20	163,778	1,332	3,871	0	59	2,660	0	60	122	
21	2570.17	159,989	-3,789	3,216	0	54	6,692	0	60	-307	
22	2569.42	159,060	-929	3,867	0	48	4,845	0	60	61	
23	2569.01	158,553	-507	2,339	0	52	2,805	0	60	-33	
24	2568.43	157,839	-714	1,362	0	54	1,974	0	60	-96	
25	2571.14	161,196	3,357	5,215	0	63	2,006	0	60	145	
26	2570.38	160,250	-946	2,682	0	67	3,639	0	60	4	
27	2572.30	162,647	2,397	4,682	0	58	2,448	0	60	165	
28	2572.07	162,358	-289	2,750	0	56	3,024	0	60	-11	
29	2571.60	161,770	-588	2,139	0	54	2,710	0	60	-11	
30	2570.04	159,828	-1,942	1,221	0	54	3,172	0	60	15	
31	2569.60	159,283	-545	1,103	0	54	1,629	0	60	-13	
Total				-4,886	77,207	23	1,871	82,236	0	2,808	1,057

Table 26. Elderberry Forebay

Daily Operation

(in acre-feet except as noted)

Capacity: 32,746 ac-ft

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Inflow		Outflow			Computed Losses (-) Gains (+)	
				Castaic Powerplant Generation	Natural	Castaic Powerplant Pumpback	To Castaic Lake			
					Natural		Natural	Project		
Nov 30	1511.00	19,571								
1	1511.37	19,715	144	3,510	15	3,498	0	0	117	
2	1514.21	20,841	1,126	3,341	16	2,131	0	0	-100	
3	1517.94	22,371	1,530	3,564	15	1,978	0	0	-71	
4	1518.74	22,707	336	3,402	15	3,023	0	0	-58	
5	1518.84	22,749	42	2,722	15	2,547	0	0	-148	
6	1516.15	21,630	-1,119	2,615	15	3,648	0	0	-101	
7	1520.84	23,600	1,970	3,712	16	1,723	0	0	-35	
8	1518.26	22,505	-1,095	1,892	18	2,902	0	0	-103	
9	1520.98	23,660	1,155	2,263	18	1,012	0	0	-114	
10	1520.49	23,450	-210	1,364	16	1,537	0	0	-53	
11	1520.07	23,270	-180	1,730	15	1,817	0	0	-108	
12	1518.12	22,446	-824	148	14	1,151	0	0	165	
13	1508.22	18,506	-3,940	711	13	4,365	0	0	-299	
14	1505.75	17,585	-921	1,726	13	2,718	0	0	58	
15	1508.84	18,741	1,156	2,169	13	961	0	0	-65	
16	1514.04	20,773	2,032	3,267	13	1,052	0	0	-196	
17	1518.10	22,438	1,665	3,109	12	1,378	0	0	-78	
18	1518.02	22,404	-34	1,550	12	1,605	0	0	9	
19	1513.17	20,425	-1,979	1,837	13	3,714	0	0	-115	
20	1510.01	19,188	-1,237	2,660	13	3,871	0	0	-39	
21	1518.71	22,694	3,506	6,692	13	3,216	0	0	17	
22	1520.89	23,621	927	4,845	13	3,867	0	0	-64	
23	1521.92	24,065	444	2,805	13	2,339	0	0	-35	
24	1523.10	24,579	514	1,974	13	1,362	0	0	-111	
25	1515.60	21,405	-3,174	2,006	13	5,215	0	0	22	
26	1517.60	22,229	824	3,639	13	2,682	0	0	-146	
27	1511.90	19,923	-2,306	2,448	13	4,682	0	0	-85	
28	1512.40	20,119	196	3,024	13	2,750	0	0	-91	
29	1513.70	20,636	517	2,710	13	2,139	0	0	-67	
30	1518.50	22,606	1,970	3,172	13	1,221	0	0	6	
31	1519.60	23,070	464	1,629	12	1,103	0	0	-74	
Total				3,499	82,236	432	77,207	0	-1,962	

Table 27. Castaic Lake

Daily Operation

(in acre-feet except as noted)

Capacity: 323,699 ac-ft

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Inflow			Outflow		Computed Losses (-) Gains (+)	
				From Elderberry Forebay		Natural	Deliveries	Released To Castaic Lagoon		
				Natural	Project					
Nov 30	1496.24	283,352								
1	1496.04	282,939	-413	0	0	18	347	40	-44	
2	1495.94	282,733	-206	0	0	18	280	40	96	
3	1495.74	282,320	-413	0	0	17	303	40	-87	
4	1495.51	281,846	-474	0	0	17	398	40	-53	
5	1495.30	281,414	-432	0	0	17	331	40	-78	
6	1495.18	281,167	-247	0	0	18	328	40	103	
7	1494.97	280,735	-432	0	0	18	189	40	-221	
8	1494.97	280,735	0	0	0	17	20	40	43	
9	1494.97	280,735	0	0	0	16	26	40	50	
10	1494.87	280,529	-206	0	0	15	27	40	-154	
11	1494.87	280,529	0	0	0	15	39	40	64	
12	1494.77	280,324	-205	0	0	15	25	34	-161	
13	1494.67	280,119	-205	0	0	15	25	34	-161	
14	1494.47	279,708	-411	0	0	16	446	34	53	
15	1494.16	279,073	-635	0	0	16	556	34	-61	
16	1493.85	278,438	-635	0	0	15	566	34	-50	
17	1493.58	277,887	-551	0	0	14	632	34	101	
18	1493.27	277,254	-633	0	0	15	519	34	-95	
19	1493.07	276,846	-408	0	0	17	436	34	45	
20	1492.86	276,418	-428	0	0	18	439	34	27	
21	1492.53	275,746	-672	0	0	19	452	34	-205	
22	1492.33	275,340	-406	0	0	19	446	31	52	
23	1492.05	274,771	-569	0	0	19	490	29	-69	
24	1491.74	274,142	-629	0	0	18	518	29	-100	
25	1491.54	273,737	-405	0	0	18	468	29	74	
26	1491.34	273,332	-405	0	0	19	401	29	6	
27	1491.13	272,908	-424	0	0	19	454	29	40	
28	1490.93	272,504	-404	0	0	19	512	29	118	
29	1490.60	271,838	-666	0	0	19	512	29	-144	
30	1490.30	271,233	-605	0	0	17	548	29	-45	
31	1490.04	270,710	-523	0	0	14	545	29	37	
Total			-12,642	0	0	527	11,278	1,072	-819	

Table 28. Governor Edmund G. Brown California Aqueduct

Southern Field Division, Monthly Deliveries (West Branch)

(In acre-feet)

December 1998

Reach No.	Operating Pool		Turnout	Total Diver- sions	Deliveries					
	Beginning and Ending				Entitle- ment	Rec.	Local	Purchase	CLWA T1	
	No.	Structure	Mile					Pool B		
29A	42	Oso Pumping Plant	1.49	204						
29F	W2	Quail Lake	5.02	Antelope Valley-East Kern Water Agency	Re- moved					
		Quail Lake Embankment	7.82	Antelope Valley-East Kern Water Agency				Stub		
		Warne Power Plant	14.07					23		
29H	W3	Pyramid Lake		Calif. State Park Pyramid Recreation	0					
		Pyramid Dam	17.10	Piru Creek Fish Enhancement				0		
		Castaic Power Plant	25.82	(77,207 AF pumpback)				82,236		
29J	W4	Elderberry Forebay								
		Forebay Dam	28.12							
		Castaic Lake		Calif. State Park Castaic Lake Recreation	0					
30 1/	W5	Castaic Dam	31.47							
		Castaic Lake Outlet	31.55	MWD - 78"	9,683	10,095	412	567	-412	
				MWD - 132"	0					
				CLWA - T1	412					
				Castaic Lake Water Agency	567					
				United Water Conservation Dist.	0					
				Ventura County FCD	Stub					
				LA Co. Parks & Recreation	0					
				Releases to Lagoon	1,072					
					Reach 30 Subtotal:	11,278	11,690	0	0	-412
	W6	Castaic Lagoon		Recreation to Lagoon	47		47			
		Castaic Lagoon Outlet	31.87		1,050					

1/ Reach 30 actually terminates at mile 31.50. It is shown here as including the outlet works at mile 31.55.

All deliveries from the outlet works and from the Lagoon are billed to Reach 30.

Table 29. Silverwood Lake

Daily Operation

(in acre-feet except as noted)

Capacity: 74,970 ac-ft

December 1998

Date	Water Surface Elev. (in feet)	Storage	Storage Change	Inflow			Outflow				Natural To Mojave River	Computed Losses (-) Gains (+)	Las Flores Ranch Exchange 1/	
				Mojave Siphon Power-plant	Mojave Bypass Flume	Natural Stream Inflow	Delivered to CLAWA	Rec.	San Bernardino Tunnel	Del. To Mojave W.A.				
Nov 30	3352.64	72,686												
1	3352.28	72,341	-345	11	0	6	2	0	385	0	0	25	10	
2	3351.99	72,063	-278	10	0	6	3	0	259	0	1	-31	10	
3	3352.31	72,369	306	475	6	6	0	0	174	0	0	-7	10	
4	3352.66	72,983	614	465	0	14	6	0	114	0	1	256	12	
5	3352.95	72,609	-374	378	0	12	1	0	102	0	0	-661	16	
6	3352.56	73,089	480	13	0	12	0	0	447	0	1	903	18	
7	3353.06	73,195	106	807	33	9	0	0	350	0	0	-393	18	
8	3353.17	73,003	-192	360	18	8	4	0	257	0	0	-317	18	
9	3352.97	72,791	-212	12	43	7	4	0	218	0	0	-52	18	
10	3352.75	72,916	125	8	54	6	1	0	143	0	0	201	18	
11	3352.88	72,810	-106	179	44	6	0	0	166	0	1	-168	18	
12	3352.77	72,839	29	215	61	6	2	0	358	0	0	107	18	
13	3352.80	72,561	-278	0	50	6	0	0	0	0	1	-333	18	
14	3352.51	72,580	19	9	64	6	0	0	228	0	0	168	18	
15	3352.53	72,599	19	499	23	6	3	0	592	0	1	87	18	
16	3352.55	72,580	-19	9	45	6	3	0	5	0	0	-71	18	
17	3352.53	72,590	10	0	41	5	3	0	46	0	0	13	18	
18	3352.54	72,523	-67	7	39	5	3	0	71	0	1	-43	18	
19	3352.47	72,523	0	2	43	7	0	0	88	0	0	36	13	
20	3352.50	72,551	28	2	56	10	0	0	0	0	1	-39	10	
21	3352.82	72,859	308	464	12	8	2	0	155	0	0	-19	10	
22	3352.81	72,849	-10	415	19	7	4	0	389	0	1	-57	10	
23	3353.00	73,032	183	237	30	7	0	0	141	0	0	50	10	
24	3352.63	72,676	-356	9	36	6	4	1	360	0	1	-41	10	
25	3352.57	72,619	-57	10	40	6	1	0	169	0	0	57	10	
26	3352.20	72,264	-355	147	46	6	0	0	502	0	1	-51	9	
27	3352.21	72,274	10	232	0	6	1	0	145	0	0	-82	9	
28	3352.35	72,408	134	522	42	6	0	0	395	0	0	-41	9	
29	3352.75	72,791	383	671	23	6	4	0	389	0	0	76	9	
30	3353.22	73,243	452	724	9	6	5	0	311	0	1	30	9	
31	3353.70	73,707	464	831	27	6	4	0	358	0	0	-38	9	
Total				1,021	7,723	904	219	60	1	7,317	0	12	-435	419

1/ Project water delivered from Mojave Siphon in exchange for like amount of Natural Streamflow.

Table 30. Lake Perris

Daily Operation

(in acre-feet except as noted)

Capacity: 131,452 ac-ft

December 1998

Date	Water Surface Elevation (in feet)	Storage	Storage Change	Inflow 1/	Outflow 2/	Computed Losses (-) Gains (+) 1/
Nov 30	1586.86	124,237				
1	1586.86	124,237	0		11	
2	1586.86	124,237	0		11	
3	1586.86	124,237	0		25	
4	1586.86	124,237	0		11	
5	1586.83	124,169	-68		10	
6	1586.91	124,351	182		10	
7	1586.92	124,374	23		10	
8	1586.92	124,374	0		10	
9	1586.91	124,351	-23		12	
10	1586.90	124,328	-23		11	
11	1586.88	124,283	-45		10	
12	1586.86	124,237	-46		11	
13	1586.88	124,283	46		11	
14	1586.83	124,169	-114		10	
15	1586.83	124,169	0		11	
16	1586.83	124,169	0		11	
17	1586.80	124,101	-68		11	
18	1586.78	124,055	-46		10	
19	1586.77	124,033	-22		11	
20	1586.75	123,987	-46		10	
21	1586.74	123,964	-23		11	
22	1586.73	123,942	-22		11	
23	1586.73	123,942	0		11	
24	1586.73	123,942	0		11	
25	1586.76	124,010	68		11	
26	1586.76	124,010	0		11	
27	1586.76	124,010	0		11	
28	1586.76	124,010	0		12	
29	1586.78	124,055	45		12	
30	1586.77	124,033	-22		12	
31	1586.76	124,010	-23		12	
Total			-227	1,274	352	-1,149

1/ Readings are not taken on a daily basis. End of month only.

2/ Includes deliveries to MWD from Reach 28J and recreation water to California State Park at Lake Perris.

Table 31a. Governor Edmund G. Brown California Aqueduct

Southern Field Division, Monthly Deliveries (East Branch)

(In acre-feet)

December 1998

Reach No.	Operating Pool		Turnout	Total Diversions	Deliveries					
	Beginning and Ending				Entitle-ment	Rec.	Transfer Ent.	Purchase Pool B	Transfer Local Out	
	No.	Structure	Mile							
17E	40	Edmonston Pumping Plant	293.45		13,096					
	41		298.65	Kern County Water Agency Tej.-Cas	Stub					
17F		Check No. 41	303.41							
18A	42	Check No. 42	304.99							
19	43	Alamo Powerplant	305.73	(Does not include 62 AF flow down Cottonwood Chute)	11,945	2	444	61		
			308.05	Antelope Valley-East Kern WA	0					
		Check No. 43	309.70							
	44		311.84	LADWP Connection	0					
			313.50	AVEK 245th Street West	0					
		Check No. 44	314.81							
	45		314.93	AVEK 235th Street West	2					
			315.57	AVEK 225th Street West	0					
		Check No. 45	319.74							
	46		323.19	Antelope Valley-East Kern WA Fairmont	505					
		Check No. 46	323.84							
				Reach 19 Total:	507					
20A	47	Check No. 47	326.77			8	1,437	597		
	48		326.91	Antelope Valley-East Kern WA Willow Springs Siphon	8					
			329.65	Antelope Valley-East Kern WA 120th Street West	Removed					
		Check No. 48	330.82							
	49	Check No. 49	335.93							
	50		336.73	AVEK WA - Quartz Hill (Wheeled for Palmdale WD)	8					
				Antelope Valley-East Kern WA	1,437					
		Check No. 50	341.51							
20B	51	Check No. 51	342.07							
	52		342.80	Antelope Valley-East Kern WA 30th Street West	Not in Use					
		Check No. 52	343.74							
	53		346.98	PWD Palmdale	597					
			348.14	Antelope Valley-East Kern WA Acton Treatment Plant	0					
		Check No. 53	348.17							
21	54	Check No. 54	350.25							
	55	Check No. 55	352.70							
	56	Check No. 56	354.76							
			354.97	Littlerock Creek I.D.	0					
	57	Check No. 57	356.93							
22A	58		357.72	Antelope Valley-East Kern WA 96th Street East	0					
22B			359.82	Antelope Valley-East Kern WA East Side Treatment Plant	225					

Table 31b. Governor Edmund G. Brown California Aqueduct

Southern Field Division, Monthly Deliveries (East Branch, Continued)

(In acre-feet)

December 1998

Reach No.	Operating Pool			Turnout	Total Diversions	Deliveries					
	Beginning and Ending		Structure			Entitlement	Recreation	Ex-change	General Wheeling	CLWA T1	
	No.	Structure	Mile								
22B	58	Pearblossom Pumping Plant	360.61		8,889	3	87	218	419		
	59	Check No. 59	366.09								
	60	Check No. 60	373.94								
	61	Check No. 61	379.00								
	62	Check No. 62	384.26								
	63		389.20	Mojave Water Agency 24" and 42"	3						
		Check No. 63	389.50								
	64	Check No. 64	395.10								
	65	Check No. 65	400.32								
	66		401.10	Mojave Water Agency Morongo 24" and 42"	87						
				Mojave Water Agency Hesperia	218						
		Check No. 66	403.41								
23	67	Mojave Siphon	405.48	Las Flores Ranch	419	60	1	1,000	419		
		Mojave Siphon Powerplant	405.65	(Does not include 904 AF of bypass at Mojave Flume)	7,723						
24		Silverwood Lake	407.65	Crestline Lake Arrowhead Water Agency	60						
25				Calif. State Park Silverwood Agency (Rec.)	1						
		San Bernardino Tunnel	411.46		7,317						
				San Gorgonio Pass Water Agency	0						
	26A	Devil Canyon Powerplant	412.73		7,317	3,402	2,018	42	1,000		
	68	Devil Canyon Afterbay Control Structures	412.88	MWD-SC Rialto	1,000						
				Desert Water Agency (MWD Wheeling Exchange)	3,402						
				San Gabriel Valley Water District	0						
				Coachella Valley WD (MWD Wheeling Exchange)	2,018						
				San Bernardino Valley (MWD Wheeling Exchange)	0						
				San Bernardino Valley Water District	42						
28G				425.46							
28H	69	Santa Ana Valley Pipeline	433.06	MWD-SC Box Springs	0						
			440.05	MWD-SC Perris Bypass Pipeline	0						
			442.00	MWD-SC 18"	0						
			443.44	MWD-SC 54"	0						
28J				MWD-SC 78"	0						
		Lake Perris		Calif. State Park							
				Lake Perris Recreation	23						
				MWD Total:	16,719	16,131	0	0	1,000	-412	

Table 32. Water Quality At Selected SWP Locations

December 1998

Constituent	Units	Thermalito Afterbay At Outlet	North Bay Aqueduct Barker Slough Pumping Plant	Banks Pumping Plant	Delta Mendota Canal At McCabe Rd.	California Aqueduct				Devil Canyon Afterbay Near San Bernardino
						O'Neill Forebay Outlet (Check 13)	Kettleman City (Check 21)	Near Hwy 119 (Check 29)	Tehachapi Afterbay (Check 41)	
Alkalinity	mg/l	39	116	71	111	88	85	74	66	68
Arsenic	mg/l	< 0.001	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.002
Boron	mg/l	< 0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1
Bromide	mg/l	NR	0.05	0.14	0.22	0.22	NR	NR	0.08	0.10
Calcium	mg/l	7	17	21	26	23	24	20	16	16
Carbon - Total Organic	mg/l	NR	4	3	3	3	NR	NR	3	3
Chloride	mg/l	< 0.1	26	48	66	69	59	45	25	31
Chromium	mg/l	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/l	< 0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Fluoride	mg/l	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/l	29	104	94	118	111	109	91	69	73
Iron	mg/l	0.007	0.006	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	0.035
Lead	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Magnesium	mg/l	2.8	15	10	13	13	12	10	7	8
Manganese	mg/l	0.006	0.015	0.012	0.081	< 0.005	< 0.005	< 0.005	< 0.005	0.008
Nitrate + Nitrite	mg/l	0.04	0.39	1.30	NR	NR	NR	NR	0.79	0.56
Phosphorus-Ortho	mg/l	< 0.1	0.08	0.13	NR	NR	NR	NR	0.06	0.09
Phosphorus-Total	mg/l	0.02	0.13	0.17	NR	NR	NR	NR	0.08	0.11
Selenium	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Sodium	mg/l	3.1	29	47	59	61	50	38	26	28
Specific Conductance	µS/cm	79	350	421	519	516	472	371	272	298
Sulfate	mg/l	< 0.1	24	48	54	49	46	29	22	22
Total Dissolved Solids	mg/l	69	186	220	282	284	260	207	152	152
Trihalomethane Formation Potential	µg/l	NR	510	357	442	406	NR	420	324	370
Turbidity	NTU	4.3	32.2	8.1	2.5	1.8	3.6	4.8	3.7	2
Zinc	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

mg/l milligrams per liter

µg/l micrograms per liter

µS/cm microSiemens per centimeter

NR - Not Reported

NTU - nephelometric turbidity units

Table 33. Water Quality At Selected Delta Stations

December 1998

Date	Tides (feet above mean sea level)		Flow In CFS		Electrical Conductivity in millisiemens/cm								Cl in mg/l		
	(Antioch) Daily Mean		Net Delta Outflow Index	Rio Vista	Antioch	Chippis Island	Emmaton		Jersey Point		Clifton Court	Cache Slough	Delta Mendota Canal	Contra Costa Canal Intake	
	Mean Daily	Monthly Average													
	Hi	Half					md	md	md	14dm	md	14dm	md	md	
1	3.72	1.44	43,321	43,321	33,685	0.21	0.32	0.15	0.16	0.43	0.41	0.74	0.41	N.R.	31
2	3.54 e	1.30 e	45,903	44,612	38,529	0.19	0.20	0.15	0.16	0.43	0.42	0.83	0.49	N.R.	31
3	4.14	1.64	47,771	45,665	43,206	0.19	0.19	0.14	0.16	0.43	0.42	0.84	0.55	N.R.	31
4	3.90	1.44	54,644	47,910	47,887	0.18	0.13	0.14	0.15	0.45	0.43	0.82	0.59	N.R.	32
5	3.79	1.42	59,439	50,216	50,893	0.18	N.R.	0.14	0.15	0.41	0.43	0.82	0.60	N.R.	30
6	3.26	1.29	61,058	52,023	52,549	0.18	N.R.	0.14	0.15	0.41	0.43	0.80	0.64	N.R.	33
7	2.72	0.98	63,915	53,722	54,412	0.17	N.R.	0.13	0.15	0.42	0.43	0.78	0.58	N.R.	30
8	2.21	0.75	66,070	55,265	55,191	0.18	N.R.	0.13	0.14	0.46	0.43	0.65	0.62	N.R.	29
9	2.21	0.58	65,927	56,450	53,898	0.17	N.R.	0.13	0.14	0.43	0.43	0.62	0.66	N.R.	27
10	2.12	0.40	64,978	57,302	51,987	0.16	N.R.	0.13	0.14	0.44	0.43	0.50	0.72	N.R.	34
11	2.21	0.44	62,232	57,751	50,702	0.15	N.R.	0.13	0.14	0.42	0.43	0.49	0.77	N.R.	38
12	2.38	0.49	61,019	58,023	49,131	0.15	N.R.	0.14	0.14	0.43	0.43	0.45	0.83	N.R.	38
13	2.85	0.75	59,195	58,113	47,460	0.15	N.R.	0.14	0.14	0.43	0.43	0.42	0.88	N.R.	56
14	2.59	0.71	57,718	58,085	46,306	0.16	N.R.	N.R.	0.14	N.R.	0.43	0.36	N.R.	N.R.	39
15	2.72	0.68	56,269	57,964	45,289	0.16	N.R.	N.R.	0.14	N.R.	0.43	0.36	N.R.	N.R.	40
16	2.80	0.74	55,035	57,781	44,151	0.15	N.R.	0.14	0.14	0.42	0.43	0.37	0.88	N.R.	40
17	3.04	0.93	52,107	57,447	41,649	0.14	N.R.	0.14	0.14	0.42	0.43	0.38	0.87	N.R.	43
18	3.40	1.28	48,306	56,939	38,310	0.14	N.R.	0.14	0.14	0.44	0.43	0.42	0.85	N.R.	41
19	3.44	1.37	46,019	56,365	35,320	0.14	N.R.	0.14	0.14	0.41	0.43	0.41	0.85	N.R.	41
20	3.48	1.30	44,035	55,748	33,485	0.14	N.R.	0.14	0.14	0.41	0.43	0.40	0.88	N.R.	41
21	2.71	0.83	41,329	55,061	32,135	0.15	N.R.	0.15 e	0.14	0.43 e	0.43	0.39	0.87 e	N.R.	43
22	2.64	0.73	41,096	54,427	30,300	0.16	N.R.	0.15	0.14	0.43	0.43	0.44	0.87	N.R.	41
23	2.16	0.69	36,709	53,656	28,326	0.15	N.R.	0.15	0.14	0.43	0.43	0.46	0.89	N.R.	42
24	1.78	0.33	34,383	52,853	25,983	0.15	N.R.	0.15	0.14	0.39	0.42	0.42	0.87	N.R.	41
25	1.84	0.21	32,401	52,035	23,934	0.15	N.R.	0.14	0.14	0.42	0.42	0.40	0.71	N.R.	41
26	2.10	0.27	30,809	51,219	22,129	0.15	N.R.	0.15	0.14	0.43	0.42	0.42	0.72	N.R.	41
27	2.43	0.30	26,643	50,309	21,019	0.15	0.16	0.15	0.15	0.44	0.42	0.44	0.80	N.R.	44
28	2.61	0.33	26,136	49,445	20,374	0.16	0.26	0.15	0.15	0.45	0.42	0.54	0.86	N.R.	49
29	2.94	0.47	25,485	48,619	19,865	0.16	0.35	0.15	0.15	0.44	0.43	0.57	0.87	N.R.	46
30	3.25	0.74	24,629	47,819	19,240	0.17	0.46	0.16	0.15	0.44	0.43	0.59	0.85	N.R.	49
31	3.52	0.96	24,039	47,052	18,373	0.19	0.61	0.16	0.15	0.43	0.43	0.60	0.84	N.R.	55

Clifton Court Cl(mg/l)=200X EC - 25

e = Estimated

N.R. = No Record.

N.C. = Not computed due to insufficient data.

f = Excess Delta conditions with fish concerns.

r = Excess delta conditions with export/inflow ratio concerns

s = Balanced water conditions with storage withdrawals. md = Mean Daily

Table 34. Pesticides, Herbicides, and Other Organic Substances Detected In the SWP

December 1998

Sampling Location	Sample Date 1/	Chemical Detected	Concentration µg/l 2/
North Bay Aqueduct At Barker Slough Pumping Plant	September-16-1998	None Detected	
California Aqueduct At Banks Pumping Plant	September-16-1998	2, 4-D MTBE	0.71 1.60
Delta Mendota Canal At McCabe Road	September-16-1998	2, 4-D MTBE	0.10 1.10
California Aqueduct Near Kettleman City (Check 21)	September-16-1998	2,4, - D	0.11
California Aqueduct At Tehachapi Afterbay (Check 41)	September-16-1998	None Detected	
Devil Canyon Power Plant At Entrance To Santa Ana Pipeline	September-16-1998	None Detected	

1/ Locations are normally sampled during March, June, and September. Monthly reports will include data for the month in which samples were most recently taken.

2/ Micrograms per liter.

Table 35. Oroville and Delta Field Divisions Energy Data

(in kWh)

December 1998

Date	Oroville Thermalito Complex		Barker Slough Pumping Plant Load	Cordelia Pumping Plant Load	Banks Pumping Plant		South Bay Pumping Plant Load	Del Valle Pumping Plant Load
	Generation	Load			Total Load	SWP Load		
1	14,907,456	0	11,683	26,607	733,632	733,632	194,680	252
2	16,755,552	0	10,822	22,085	979,584	698,584	132,190	244
3	18,160,416	0	10,535	22,631	1,047,360	766,360	162,850	245
4	17,601,984	0	12,306	24,787	1,089,408	808,408	150,450	278
5	17,868,672	0	10,955	23,471	1,094,208	813,208	143,700	292
6	18,117,792	0	10,640	24,164	1,074,624	793,624	152,755	290
7	18,201,600	0	13,398	26,264	1,090,368	809,368	156,370	303
8	18,219,456	0	14,490	25,844	1,094,208	813,208	156,030	289
9	17,959,392	0	14,973	24,010	1,091,328	810,328	209,945	293
10	17,961,984	0	17,696	29,813	1,264,512	983,512	195,885	286
11	17,489,376	0	14,917	26,383	1,111,680	830,680	230,475	291
12	17,883,072	0	13,363	26,845	1,090,368	809,368	223,780	299
13	18,275,616	0	13,895	27,783	1,074,432	793,432	235,620	291
14	16,887,168	0	16,989	28,406	1,089,984	808,984	231,520	292
15	17,371,296	0	18,480	29,351	1,089,792	808,792	212,645	456
16	13,466,592	0	16,709	27,314	1,971,840	1,690,840	125,905	343
17	12,899,520	0	18,795	30,954	1,434,624	1,434,624	124,345	224
18	11,070,720	288	20,062	30,961	1,799,808	1,799,808	126,030	2,282
19	9,237,312	0	16,457	27,538	1,543,872	1,543,872	124,965	4,420
20	11,713,824	0	17,122	30,961	722,496	722,496	124,625	4,496
21	15,255,648	0	19,754	35,007	748,992	748,992	124,340	4,718
22	12,888,576	0	19,075	35,329	368,640	368,640	144,075	4,352
23	11,597,472	0	18,529	34,748	1,906,752	1,906,752	248,045	364
24	7,106,112	0	17,598	35,140	2,049,216	2,049,216	247,120	323
25	3,922,560	288	17,668	35,070	1,264,512	1,264,512	243,265	268
26	5,550,624	0	15,946	33,040	487,296	487,296	241,970	268
27	5,177,376	0	18,788	34,895	1,842,240	1,842,240	243,480	297
28	7,451,712	0	21,070	39,312	1,011,648	1,011,648	216,455	548
29	6,656,544	0	22,827	37,674	951,936	951,936	212,270	597
30	6,182,496	576	16,562	33,033	1,025,664	1,025,664	206,890	740
31	7,271,136	288	16,807	32,753	1,086,912	1,086,912	175,345	719
Total	411,109,056	1,440	498,911	922,173	36,231,936	32,016,936	5,718,020	29,360

Table 36. San Luis Field Division Energy Data

(in kWh)

December 1998

Date	Dos Amigos Pumping Plant		Gianelli Pumping-Generating Plant			
	Total Load	SWP Load 1/	Total Generation	SWP Generation 1/	Total Load	SWP Load 1/
1	490,176	328,176	718,848	-24,152	13,824	13,824
2	501,408	339,408	337,824	337,824	14,688	14,688
3	560,736	362,736	431,136	431,136	12,384	12,384
4	736,704	538,704	309,024	309,024	16,128	16,128
5	668,304	470,304	0	0	19,008	19,008
6	692,496	494,496	0	0	18,720	18,720
7	694,656	418,656	859,392	227,392	15,840	15,840
8	861,408	585,408	912,096	330,096	15,840	15,840
9	686,304	410,304	1,130,688	407,688	9,216	9,216
10	737,568	404,568	230,112	230,112	20,448	20,448
11	802,224	469,224	1,346,400	582,400	17,280	17,280
12	832,176	499,176	730,368	-33,632	16,704	16,704
13	892,800	559,800	0	0	21,024	21,024
14	879,408	513,408	758,016	-5,984	16,128	16,128
15	889,200	523,200	1,086,336	322,336	15,840	15,840
16	914,112	548,112	662,688	-9,312	15,552	15,552
17	966,096	492,096	982,656	-20,344	15,264	15,264
18	963,216	489,216	1,112,832	-31,168	15,264	15,264
19	953,424	479,424	551,520	-24,480	16,704	16,704
20	1,137,744	663,744	767,520	473,520	470,880	470,880
21	952,272	478,272	2,892,384	1,423,384	76,320	76,320
22	789,120	315,120	1,428,192	6,192	1,224,576	1,224,576
23	645,696	171,696	125,280	125,280	23,328	23,328
24	647,568	146,568	1,401,984	-149,016	968,544	968,544
25	477,648	18,648	0	0	21,600	21,600
26	179,136	23,136	1,537,920	-13,080	1,627,200	1,627,200
27	339,552	27,552	0	0	2,073,312	2,073,312
28	384,480	72,480	918,144	-21,856	33,408	33,408
29	589,968	142,968	1,246,176	-4,824	1,597,536	1,597,536
30	863,712	551,712	0	0	355,968	355,968
31	730,512	418,512	0	0	21,600	21,600
Total	22,459,824	11,956,824	22,477,536	4,868,536	8,800,128	8,800,128

1/ Negative values may appear in SWP columns and indicate a mismatch of scheduled CVP energy and actual pumping; adjustments to SWP water shares are made to balance the mismatch.

Table 37. San Joaquin Field Division Pumping Plant Energy Load Data

(in kWh)

December 1998

Date	Coastal Branch					California Aqueduct			
	Las Perillas	Badger Hill	Devils Den	Bluestone	Polonio	Buena Vista	Teerink	Chrisman	Edmonston
1	5,774	13,752	29,898	30,654	33,462	168,696	158,328	353,088	1,260,720
2	4,150	9,632	15,876	16,398	16,290	119,088	104,760	248,544	892,080
3	5,610	14,512	34,272	33,066	33,930	108,576	140,112	360,000	1,383,840
4	3,872	7,200	15,966	17,748	18,882	194,040	198,648	457,056	1,686,960
5	7,628	19,528	33,804	34,470	33,552	134,856	125,568	294,336	1,031,040
6	7,484	19,936	33,876	34,560	33,606	79,488	79,344	169,920	534,240
7	11,088	29,960	25,794	27,648	28,242	220,320	235,584	530,496	1,995,120
8	13,294	34,424	23,094	24,120	23,994	137,520	144,720	302,688	1,077,840
9	15,190	38,896	28,206	29,304	27,972	110,304	107,784	244,512	835,920
10	12,044	31,888	5,814	6,660	6,138	104,040	106,488	190,368	712,800
11	14,612	38,048	33,480	34,794	33,264	109,440	89,856	189,792	717,840
12	16,914	43,264	32,418	34,686	34,506	109,728	110,448	201,024	718,560
13	18,618	47,696	33,588	34,686	33,264	29,088	51,840	87,264	227,520
14	17,330	44,552	23,310	24,822	24,192	60,480	67,968	120,960	414,000
15	17,418	44,472	30,312	31,374	30,978	147,384	159,696	296,352	1,146,240
16	14,366	38,136	21,564	22,518	22,698	100,080	87,552	171,936	594,720
17	13,108	33,144	20,034	21,078	19,836	91,080	62,928	137,952	472,320
18	14,006	38,480	32,328	35,082	34,578	96,048	46,800	122,112	473,040
19	14,816	39,208	32,328	35,046	34,596	108,432	60,480	120,672	526,320
20	16,268	42,296	33,966	35,064	34,380	85,824	47,232	105,120	413,280
21	15,410	41,760	31,554	32,490	31,968	173,736	162,648	348,192	1,434,960
22	7,134	17,704	22,212	22,500	22,266	154,008	135,576	300,672	1,141,920
23	3,562	7,200	14,328	14,094	13,950	178,632	135,792	254,592	832,320
24	5,376	12,424	29,736	32,184	32,454	147,312	113,976	253,728	835,200
25	4,002	7,592	18,954	19,350	18,756	168,984	118,800	238,176	768,960
26	5,384	12,536	32,454	35,190	34,704	134,424	109,512	235,296	836,640
27	5,306	11,032	33,678	35,136	33,354	187,200	190,656	453,312	1,519,200
28	5,928	13,784	29,844	32,328	32,310	137,232	157,320	304,416	1,151,280
29	5,274	11,896	27,072	27,396	25,974	154,296	130,176	326,016	1,141,920
30	4,364	8,896	19,404	21,438	21,888	273,672	255,024	543,456	1,911,600
31	6,888	17,112	33,894	34,614	33,588	238,392	229,968	537,120	1,931,760
Total	312,218	790,960	833,058	870,498	859,572	4,262,400	3,925,584	8,499,168	30,620,160

Table 38. Southern Field Division Energy Data

(in kWh)

December 1998

Date	West Branch			East Branch			
	Oso Pumping Plant Load	Warne Powerplant Generation	Castaic Powerplant SWP Generation	Alamo Powerplant Generation	Pearblossom Pumping Plant Load	Devil Canyon Powerplant Generation	Mojave Siphon Powerplant Generation
1	9,856	0	0	58,744	309,564	486,336	0
2	9,576	0	0	40,040	165,168	321,216	0
3	7,448	0	0	57,736	219,732	205,056	34,923
4	78,960	0	0	40,964	249,336	128,736	30,849
5	7,448	0	0	55,524	230,688	113,088	27,888
6	7,616	0	0	13,608	81,516	558,048	0
7	7,504	0	0	97,720	504,540	430,848	59,325
8	7,392	0	0	48,720	226,668	319,296	22,974
9	7,504	0	0	40,404	162,216	250,560	0
10	8,792	0	0	28,700	144,360	165,216	0
11	9,744	0	0	32,620	147,168	192,576	11,109
12	9,688	0	0	34,524	142,128	434,496	13,881
13	9,464	0	0	7,252	17,580	0	0
14	9,408	0	0	7,952	55,092	268,512	0
15	8,232	0	0	44,128	264,492	704,352	31,752
16	8,176	0	0	21,672	128,316	0	0
17	7,896	0	0	17,640	13,776	44,736	0
18	8,008	0	0	8,932	112,296	65,760	0
19	8,176	0	0	23,100	81,684	95,616	0
20	8,400	0	0	13,972	67,272	0	0
21	8,904	0	0	65,268	357,072	186,432	30,303
22	9,240	0	0	47,012	283,692	473,472	26,124
23	8,904	0	0	35,028	180,996	160,512	14,805
24	9,408	0	0	36,316	165,588	456,576	0
25	9,520	0	0	28,728	132,264	198,624	0
26	8,232	0	0	35,728	161,448	622,272	9,198
27	8,736	0	0	66,500	403,368	175,968	14,889
28	7,952	0	0	54,908	352,404	471,744	37,779
29	9,240	0	0	49,084	241,224	479,616	45,486
30	9,296	0	0	90,832	503,208	383,808	47,061
31	9,632	0	0	96,796	486,108	449,088	64,932
Total	338,352	0	0	1,300,152	6,590,964	8,842,560	523,278